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VISUAL REQUIREMENT IN THE PUBLIC SERVICES OF THE UNITED STATES*

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I invite your attention to the consideration of the visual standards in the public services of the United States, the subject concerning which I have chosen to address you this afternoon. It occurred to me that it might be well to collate all the laws which the government has enacted regarding the visual requirements of those engaged in its public services. I was aware that this information had never been collected and placed in a readily accessible form, as I had frequently myself had difficulty in ascertaining what the standards of vision were, which governed the admission of cadets into our naval and military academies, or regulated the granting of licenses to pilots.

With this idea in mind, and with the intention of laying the entire subject before the Section at this meeting, I devoted myself to the acquisition of as much information regarding the matter as was possible, and in addition to studying the conditions at home, communicated with foreign governments through the cooperation of our embassies, and obtained from Great Britain, Germany and France, the visual standards which these countries enforce in their various services.

With the data of these investigations at hand and with all the information on the subject which I could command, I determined before proposing any modifications or changes in existing standards to endeavor to elicit the aid and cooperation of the officers of the various branches of the public services themselves, realizing that while we, as practicing and scientific ophthalmologists, might be more familiar with certain phases of the subject, they for their part, by virtue of long experience, were better fitted than we to decide on certain points. With this end in view, I had an interview with the Surgeon-General of the Army, Dr. George H. Torney, and was much pleased to have not only his entire approval of my plan, but also his offer of full cooperation. Indeed, he suggested that I proceed at once to draft a new series of visual requirements for the Army, and that this revision of the standards might be comprehensive and in a manner authoritative, he suggested that I associate with me the three ophthalmologic members of the Medical Reserve Corps of the Army, Drs. L. Webster Fox and George E. deSchweinitz, of Philadelphia,

and Dr. Myles Standish, of Boston, nominating me also to a lieutenantancy in the same Department. All three of these gentlemen expressing their willingness to cooperate, the Philadelphia members, Drs. Fox, de Schweinitz and myself, invited a number of army officers who were resident in Philadelphia at the time, and several prominent members of the Pennsylvania National Guard to meet us, for the purpose of obtaining from them their ideas regarding the degree of vision which was necessary for the proper performance of the duties of a soldier or officer in the various fields of army activity. The demands on sight in each corps of the army were considered very carefully and the views of all of the gentlemen present, who represented nearly all the departments of the army, were carefully noted.

The various communications on the subject which had been addressed to the War Department from time to time by officers and surgeons of the army, relative to vision were also studied, and mention must here be made of the indebtedness of the commission to the admirable report¹ of Lieut.-Col. J. M. Banister, and Major H. A. Shaw, made in October, 1909, from which much valuable information was obtained regarding the degree of vision necessary for the enlisted man.

The visual standards in operation in the armies of Great Britain, Germany and France were next studied and consideration given to the probable reasons for their variations from our standards. With this information drawn from such wide and varied sources at hand, the commission drafted a series of requirements of its own. These have received the approval of the Surgeon-General of the Army and will shortly be submitted by him to the general staff for adoption.

PRESENT REQUIREMENTS IN THE ARMY

The present requirements, with dates of adoption for the various corps and departments attached are as follows:

U. S. MILITARY ACADEMY—ADMISSION

"Vision, as determined by the official test-types, must not fall below 20/40 in either eye, and not below 20/20 unless the defect is a simple refractive error not hyperopia, is not due to ocular disease, and is entirely corrected by proper glasses.

"In the record of all examinations, the acuity of vision without glasses, and also with glasses when the acuity is less than 20/20, will be given for each eye separately; in the latter case the correction will also be noted.

"Hyperopia requiring any spherical correction, anisometropia, squint or muscular insufficiency, if marked, are causes for rejection.

"Color-blindness, red, green or violet, is cause for rejection."
G. O. 176, '06.

" . . . In the examination of cadets, except those on probation, discharge will not be recommended except for some cause which disqualifies for the duties of a cadet or is likely in the future to impair his efficiency as an officer of the Army.

* Chairman's address before the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, St. Louis, June 7-10, 1910.

* The length of this address made necessary its abbreviation in THE JOURNAL. The introductory remarks are omitted, in which Dr. Posey commented on some of the features of the program for this session. Some of the details of the descriptions of various visual tests are also omitted further on in the article. The complete text appears in the Transactions of the Section and in the author's reprints.

Defects of vision, however, must in all cases be entirely corrected by glasses." G. O. 176, '06.

SECOND LIEUTENANT FROM CIVIL LIFE

The visual requirements are satisfied by a candidate who has "20/40 in either eye, or who is not color-blind for red, green or violet." G. O. 59, '08.

MEDICAL CORPS

"Errors of refraction, if not below 20/40 in either eye, are not cause for rejection, provided they are not accompanied by ocular disease and are entirely corrected by appropriate glasses."

HOSPITAL CORPS

"Applicants may be accepted with a vision of 20/70 in either eye, correctible to 20/40 with glasses, provided that no organic disease exists in either eye." G. O. 256, '07.

ENLISTED MEN OF THE LINE

Enlisted men of the line of the Army and of the Engineer and Signal Corps, a minimum of 20/40 for the better eye, and of 20/100 for the poorer, provided that no organic disease exists in either eye.

Enlisted men of the Ordnance, Subsistence and Quartermaster's Departments and for the Hospital Corps a minimum of 20/70 in each eye correctible to 20/40 with lenses, provided that no organic disease exists in either eye.

Recruits may be accepted for the line of the Army when unable with the better eye to recognize all of the letters on the 20/40 line, provided that they may be able to read some of the letters on the 20/30 line. Circulars 4 and 5, 1908.

Reference to the "better eye" in the preceding requirements indicates the right eye, it having been determined that shooting from the left shoulder is undesirable.

PROPOSED REQUIREMENTS

The proposed requirements which have been presented by the commission appointed by General Torney are as follows:

I. REQUIREMENTS IN THE U. S. MILITARY ACADEMY

For Entrance.—A minimum of 6/6 vision in each eye. If hypermetropia be present, as detected by the test lenses, a manifest of more than 1 D. will exclude. The muscle error at 6 meters shall not exceed a hyperphoria of 2°, an exophoria of 5°, or an esophoria of 8°. Color-blindness, red, green or violet, is cause for rejection.

For Graduation.—A minimum of 6/12 vision in one eye and of 6/18 in the other, but capable of being corrected to 6/6 in each eye by proper lenses, is requisite.

ADDENDA

Examination shall be made of the eyes of all cadets at the commencement of each academic year and if at any time during the course vision is found to have deteriorated to a degree greater than is required at graduation, the cadet shall be dropped. When a refraction error exists, cadets shall be commanded to wear the glasses prescribed for them precisely as directed by the medical officer in charge.

II. SECOND LIEUTENANT FROM CIVIL LIFE

A minimum of 6/12 in one eye, and of 6/18 in the other, capable of correction in each to 6/6, and a normal color sense are requisite. The muscle error at 6 meters shall not exceed a hyperphoria of 2°, an exophoria of 5°, or an esophoria of 8°.

III. FOR PROMOTION

For advancement through the various grades short of that of major, uncorrected vision must equal at least 6/24 in one eye and 6/30 in the other, and corrected vision, 6/6 in one eye and 6/12 in the other. For promotion to the rank of major and all higher grades no definite visual standard is required. The eyes, however, shall be carefully examined in each case, and if in the opinion of the Examining Board their condition is such that they render the performance of the military duties peculiar to each rank impossible, the officer shall be recommended for retirement.

IV. MEDICAL CORPS

For Entrance.—A minimum of 6/18 is requisite in each eye, which is capable of improvement to 6/6.

For Promotion.—Uncorrected vision shall not fall below 6/30 in one eye and 6/60 in the other, and corrected vision shall equal 6/6 in one eye.

V. HOSPITAL CORPS

For entrance and promotion, a minimum of 6/21 is requisite in either eye, which is capable of improvement to 6/6 in one eye and at least 6/12 in the other.

VI. ENLISTED MEN OF THE LINE OF THE ARMY AND OF THE ENGINEER AND SIGNAL CORPS

A minimum of 6/12 for the better eye and of 6/30 for the poorer is requisite.

VII. ENLISTED MEN OF THE ORDNANCE, SUBSISTENCE AND QUARTERMASTER'S DEPARTMENTS AND OF THE HOSPITAL CORPS

A minimum of 6/21 for the better eye, and 6/30 for the poorer is requisite, correctable to 6/6 and 6/12, respectively.

OTHER CAUSES FOR REJECTION

Apart from the visual standards which have just been described, and the restrictions as to muscle error and defects in the color-sense imposed in certain branches of the service, the presence of any structural changes or inflammatory conditions of the eyeball or its adnexa, such as might lead to impairment of vision later, are causes for rejection in all departments of the Army. Candidates whose eyes present merely the results of former inflammatory processes, may be accepted, provided the eyes are entirely free from inflammation at the time of the examination, and that they possess the necessary degree of vision, and that the sequelæ of the previous inflammation have entailed no serious impairment in the structure of the eye or its adnexa.

DIRECTIONS FOR CARRYING OUT THE TESTS

In testing the degree of visual acuity and of the balance of the extraocular muscle, the candidate must be seated exactly at 6 meters from the charts and the light used in the muscle test, and this distance must never be varied. (Six meters shall be regarded as equivalent to 20 feet.)

For purposes of uniformity and to guard against the possibility of any deception on the part of the candidates, all tests shall be made with the standard charts issued by the department. These shall be exhibited to the candidate in a good natural or artificial light at a height of 4 or 5 feet from the ground. In the tests made at the Military Academy, the charts shall be illuminated by the Williams battery of electric globes, with daylight excluded from the room.

Each eye shall be tested separately and the examiner must exercise the greatest caution that the eye which is not under examination shall be properly excluded. During the performance of the test the lids must remain naturally open, squinting being prohibited. In the event that the candidate is unable to read all the letters on the line designated as his minimum vision, he will be passed, provided he is able to read three of the letters on the next smaller line with both eyes directed on the chart.

The manifest hypermetropia shall be detected by testing each eye separately, either by the so-called fogging system of first holding a + S. 3 D. or 4 D. lens before the eye and then gradually abstracting from its strength by holding — S. lenses before it until 6/6 vision is attained, or by beginning with + S. 0.25 D. and gradually increasing the strength of the lens until the letters on the 6/6 line are no longer visible.

The muscles of candidates at the Military Academy and of second lieutenants from civil life shall be tested with the Maddox rod, and a set of prisms. Their color-sense shall be ascertained by the tagged Holmgren worsted test-of-Williams.

L. WEBSTER FOX,

GEORGE E. DE SCHWEINITZ,

MYLES STANDISH,

WILLIAM CAMPBELL POSEY, Chairman,

Lieutenants Medical Reserve Corps, Feb. 11, 1910.

In our letter of explanation to the Surgeon-General, of the proposed standards and tests which we offered the commission wrote as follows:

The requirements at the Military Academy have been raised so that each candidate must have full visual acuity. This has been done for a variety of reasons. In the first place, it is believed that there will be no difficulty in obtaining a sufficient number of candidates from young men who possess full vision, as observation has shown that at least 65 per cent. of the young men who enter American colleges have normal sight in both eyes. If a lower degree of visual acuity is accepted, a number of candidates with myopia and astigmatism will be received into the department, whose sight will still further deteriorate under the strain of student life while they are in the Military Academy, as well as in the service later, as a consequence of the tax placed on the eyes by the increasing amount of study demanded of officers for promotion through the various grades. The elimination of candidates with high degrees of hypermetropia by the rejection of those possessing more than 1 D. of manifest hypermetropia, as well as of those with troublesome degrees of muscle errors, has been advised with a view to debarring from the service all who would be likely to suffer from eye-strain under the demands of prolonged study.

It has been deemed wise to establish a standard for graduation, in order that the department may have an authoritative basis for retiring a cadet when the eyes had deteriorated to such an extent that his usefulness as an officer might be curtailed, but the commission has purposely set the standard so low that only those whose eyes had deteriorated to an unusual degree would be debarred from graduation. It is believed that a minimum of 6/12 in one eye and of 6/18 in the other, capable of improvement in each eye to 6/6, will not exclude cadets who may develop the moderate amount of myopia which is natural at their age among all students employing their eyes under somewhat similar conditions.

It is advised that the medical officer in charge of the Academy should make ocular examinations of all the cadets at least once a year and should carefully test under atropin all those with symptoms of asthenopia or whose eyes manifest any tendency toward deterioration. Glasses should be worn constantly if judged necessary.

In order to avoid deception on the part of the candidates, it is recommended that the department prepare its own charts, on which such devices and letters may be figured as will not lend themselves to be easily learned by the candidates.

At West Point, where it is most desirable that all of the tests should be made under uniform conditions, a standard means of illuminating the test cards has been suggested, and the committee recommends that devised by Dr. Charles H. Williams, of Boston, for this purpose.

A candidate for a second lieutenancy from civil life is given the same visual requirements as obtain for graduates from the Military Academy.

Candidates for entrance into the Medical Corps are permitted to possess a somewhat lower degree of visual acuity than under the old standards, i. e., 6/18 instead of 6/12, while the same standard is maintained for the Hospital Corps, though improvement of the vision in one eye to normal is deemed requisite.

The former standard for enlisted men of the line of the Army has been maintained, as it is the opinion of the committee that while the possession of the minimum degree would be insufficient for sharpshooting and the performance of other duties which demand the sharpest vision, there would always be a sufficient number of candidates enlisting with normal vision from whom there would be no difficulty in securing soldiers who would be able to perform the duties demanding extraordinarily sharp vision.

It is not possible to dwell further at this time on the eyes of the soldier, but to those who may be surprised at the comparatively low standard which has been set for the enlisted man, it may be said that modern warfare has abolished in large measure the need of sharp vision, and that with the exception of sharpshooting, firing at the enemy is done in volleys at definite ranges, which is determined by the officers in charge and is irrespective of definite aim at any one object.

THE MERCANTILE MARINE PILOTS

There are two classes of pilots in the United States.

1. *Federal Pilots.*—Under this class is comprised masters, mates and pilots of all steam vessels and the masters of sail vessels of over 700 gross tons, and all other vessels of over one hundred gross tons carrying passengers for hire.

2. *State or Bar Pilots.*—These branch pilots, as they are frequently termed, are under state law or municipal regulation. They lie off the principal harbors and bring in and take out vessels in the foreign trade and in some states sail-vessels in the domestic or coasting trade. They are in no way amenable to the federal government, but are under the supervision of the pilot commissioners or bureaus of navigation of the various states.

FEDERAL PILOTS

According to act of Congress (Sections 4439, 4440, 4442 of the Revised Statutes of the United States), "No original license as master, mate, or pilot of any vessel propelled in whole or in part by steam, gas, fluid, naphtha, alco-vapor, electric, or other like motors, or master or mate of sail vessels, shall be granted except on the official certificate of a surgeon of the Public Health and Marine-Hospital Service, that the applicant is free from the defect known as color-blindness. No renewal of license shall be granted to any officer of the classes named who has not been previously examined and passed for color-blindness: *Provided, however,* That any person that received a license prior to the adoption of the rule demanding a visual examination may have such license renewed for daylight navigation only, provided there is no other bar to such renewal: *Provided, further,* That any person holding a license as mate on steamers navigating waters flowing into the Gulf of Mexico and their tributaries issued prior to 1905 may have such license renewed without being subjected to the examination for color-blindness.

"Any person requiring examination for color-blindness who is living at a distance of 100 miles or more from a surgeon of the Public Health and Marine-Hospital Service may be examined for color-blindness by any reputable physician; and the physician shall furnish a duplicate report of the examination made on the regulation blanks, one copy of which shall be furnished the applicant and the other sent to the local inspectors of steam vessels to whom the applicant shall apply for such original or renewal of license."

The first test for color-blindness in the U. S. Marine dated from an order from the Treasury Department to Supervising and Local Inspectors of Steam Vessels as early as 1880. The wording of the decree was as follows:

By an amendment to Rule 47, Rules and Regulations of the Board of Supervising Inspectors, adopted at the twenty-eighth session of the Board, recently held in this city [Washington], and which was approved by the Secretary of the Treasury, Feb. 13, 1880, and promulgated in Department Circular No. 13, 1880, it was ordered that all persons applying for either a renewal of license, or an original license, as pilots on steam-vessels, shall be required to undergo a visual examination, in order that it may be determined whether such person can properly distinguish the colored lights used as signals on steam-vessels; and, in future, inspectors will issue pilots' licenses only on certificates of surgeons of the United States Marine-Hospital Service that applicants therefor fulfil all the requirements of the rule referred to.

Under the provisions of Department Circular of June 11, 1879, surgeons of the Marine-Hospital Service are directed to make such examinations free of expense to persons applying therefor.

In pursuance of this order the Marine-Hospital Service in 1903 enacted the following (paragraph 119):

Whenever officially requested by the local inspectors of steam-vessels or other proper officials, commissioned officers will examine applicants for pilots' license as to sense of hear-

ing, color perception and general visual capacity, and will give a certificate accordingly.

In Instructions Relative to Physical Examinations (paragraph 15) the following instructions are given:

The eyesight will be tested by the test-types furnished by the Bureau, and the Holmgren worsted test will be employed in testing for color-sense. The test must be made for each eye separately.

LACK OF A FIXED STANDARD

It will be seen, from the foregoing that the federal government has recognized the importance of the color test for a considerable length of time and has enacted sufficient legislation to debar color-blind navigators from the command and piloting of many vessels. It has, however, failed to designate the degree of visual acuity which a candidate for a pilot's or officer's license must possess. The Marine-Hospital Corps, realizing that its officers who make the tests at the request of inspectors of the Department of Commerce and Labor, must have some standard to guide them in their examinations, established an unwritten requirement that vision shall not fall below 15/20 in each eye when tested separately. I have ascertained, however, by extensive inquiry, that many officers of the corps are unaware of the existence of this order, and that those who are cognizant of it do not always adhere to it with absolute literalness.

As at present constituted, the final decision in regard to the acceptance or rejection of a candidate does not reside with the officers of the Marine-Hospital Service, but with the local representatives of the Department of Commerce and Labor, the inspectors of steam-vessels of a port, the officers of the former corps merely transmitting the results of their examination to the inspectors, with a recommendation as to the candidate's fitness or unfitness for the position for which he is applying. The Department of Commerce and Labor having failed to establish a standard, the decision of the degree of vision a navigator must possess before he is granted a license depends entirely, therefore, on the judgment of the Marine-Hospital officer conducting the test, and the opinion of the local inspector.

From what has been said, it is apparent, I think, that the absence of any fixed standard of visual acuity to govern the tests made by the federal government is due to no fault of the Marine-Hospital Service and reflects in no way on the admirable and efficient conduct of that corps. The power to create standards for use in these tests resides entirely in the Department of Commerce and Labor, and I have no doubt but that the present lack of a standard is due to the fact that the officers of that department have never had their attention called to the matter and have not appreciated the actual condition of affairs.

STANDARDS PREPARED FOR SUBMISSION TO THE DEPARTMENT OF COMMERCE AND LABOR

With a view to correcting the evil and to obtaining if possible, a fixed standard of vision on which to base the granting of licenses to navigators under federal law, I visited Washington some months ago and took up the question with General Wyman. This distinguished officer received my overtures with the greatest friendliness and alacrity, and suggested that I submit my ideas of proper standards to him, that he might present them to the Department of Commerce and Labor for consideration and possible adoption.

As I have been much interested in the examination of pilots' eyes for many years, and as official oculist to the Board of Pilot Commissioners of Pennsylvania had just

finished testing the eyes of all the pilots of that state under a new law which the commissioners had put in operation at my instance some months before and which had proved most satisfactory in its operation to commissioners and pilots alike, I ventured to accede to General Wyman's request and to draft a series of standards which were framed along the same lines, to govern the examinations of federal pilots. The standards which have been prepared for the consideration of the Department of Commerce and Labor to govern the examination of federal pilots by the Marine-Hospital Service are as follows:

Normal color-sense is requisite. Any imperfection disqualifies.

A candidate must have at least 20/40 uncorrected vision in one eye and 20/70 in the other, and corrected vision must equal 20/20 in one eye and at least 20/40 in the other.

All pilots under 50 years of age must submit to reexamination every five years; those over 50 years every two years.

In the event that the examiner has reason to suppose that visual acuity or color-sense may rapidly deteriorate, he shall issue a license only for as long a time as he considers the visual standards will be maintained, the candidate being ordered to report for reexamination at the end of that period.

DIRECTIONS TO BE OBSERVED IN MAKING THE TEST FOR VISUAL ACUITY

The examiner will observe that the Snellen charts used in the tests shall be exhibited to the candidate at a height of 4 or 5 feet from the ground and at a distance of 20 feet exactly, and this distance must be maintained throughout the test. A good light must fall on the chart, and during the tests charts with different lettering should be employed in such a manner that the candidate cannot become familiar with the letters on the various lines. Each eye should be tested separately by carefully excluding the eye which is not being examined by holding a card before it. No pressure should be exerted nor should the excluded eye be closed.

As soon as the examiner has ascertained the lowest line which the candidate has been able to read, the vision shall be recorded in the form of a fraction, the numerator of which will represent the distance at which the test was made, i. e., 20 feet, the denominator the number on the chart opposite the last line which was read. The fellow eye is now similarly tested. During the performance of the test, the lids must remain naturally open, squinting being prohibited. In the event that the candidate is unable to read all the letters on the line designated as his minimum vision, he will be passed, provided he is able to read three of the letters on the next smallest line with both eyes directed on the chart.

DIRECTIONS TO BE OBSERVED IN MAKING THE TESTS FOR COLOR-SENSE

The wools should be carefully kept in the boxes provided for the purpose, except when in use in examinations, in order that they may not become faded or dirty.

The test should be made only by daylight and never when the weather is very dark or foggy.

A properly assorted set of wools consists of 3 large test skeins, of a light pure green, rose pink and red, respectively, and of 150 small skeins of the following colors: red, orange, yellow, yellow green, pure green, blue-green, blue, violet, purple, pink, brown and gray. In addition, there are several shades of each color and a number of gradations of each tint from the deepest to the lightest.

Test 1.—After the entire set of wools has been spread out on a table before the candidate, the examiner places the large green test skein at a distance of about two feet from the other colors, and asks the candidate to select from the heap of colors all that look to him like this test skein, and place them beside it. No names should be mentioned in connection with any color in the above-worsted test, which should be based only on a comparison of colors. The candidate should be made to understand that he is not expected to find an exact match for the test skein, but that he is to choose all the colors that appear

to him of the same general color as the test skein, both those that are lighter and those that are darker in shade. If he does not easily understand what is wanted, let the examiner himself select the colors; then, having returned them to the general heap and mixed them thoroughly with the rest of the colors, let him call on the candidate being examined to repeat the selection. This demonstration will not enable a candidate who is defective in his color-perception to select the colors correctly, and he may pick out, as looking to him like the large test skein, some greens and also some of the gray or brown confusion colors, which will appear to him of the same general color as the test skein only varying from it in shade.

A person with a normal color-sense will pick out the lighter and darker shades of green rapidly and without hesitation. He may, perhaps, include in his choice a few green skeins inclining to yellow or blue; but this is no evidence of color-blindness, but rather of a lack of practice with colors. The completely color-blind, whether to red or green, will select, with or without greens, some confusion colors—grays, drabs, stone-colors, fawns, pinks or yellows. The incompletely color-blind, or those with a feeble chromatic sense, will add to the selection of greens one or more light fawns or grays; or they may pick out a skein, hesitate, add it to the greens and then withdraw it, and so on.

When confusion colors have been selected, we know that the candidate is either completely or incompletely color-blind. In order to determine its nature and degree we employ a second test.

Test 2.—Return all the colors to the heap and mix them together. Place the rose test skein apart from the rest, and have the candidate select, as before, all the colors that look to him like this skein.

The color-blind will always select deeper colors, i. e., either the light or deep shades of blue and violet. The completely red-blind will select blue or violet, either with or without purple. The completely green-blind will choose green or gray either with or without purple.

A candidate who is proved color-blind by the first test is only incompletely color-blind if he matches the rose with deeper purples alone.

Test 3.—This test is merely supplementary to the two preceding and consists in separating the red skein from the rest of the wools. The red-blind will select, besides the red, green and brown shades darker than the red. The green-blind will select green and brown shades lighter than the red. Only persons with marked color-blindness manifest their defect with this test.

Williams Lantern Test.—Turn the rheostat so as to have a medium illumination from the two incandescent lights in the lantern, or, if an electric current is not available, light both lamps, taking care not to turn them up so high as to smoke, then place the lantern 20 feet from the person to be examined about on a level with his head, the side of the lantern carrying the disc with the colored glasses directly toward him, and darken the room. Place the shutters so that three lights are shown at one time through either the largest or the medium openings, turn the disc slowly, and have the person examined call aloud the names of the colors as shown, designating them thus, "middle red, right red, left green," etc. Under each color is a distinguishing number which is lighted at the same time as its color, and as the examination proceeds the examiner will note the number of the color shown and the name given to it.

After all the combinations with three colors at a time have been shown, change the shutters so as to show one or two lights at a time and revolve the disc again, noting the results as before.

Calling a green light blue, or *vice versa*, calling a yellow red, or, with the smallest opening failing to see the color of No. 7 (cobalt blue) which transmits less light than some of the others, will not be considered serious mistakes, but the confusion of red or green with each other will reject.

UNLICENSED PILOTS

According to the present law, there are a large number of vessels of considerable tonnage whose masters need not necessarily take out a license. Thus, masters of

yachts and of sailing vessels under 700 gross tons and of motor vessels of 15 gross tons or less, and motor vessels, irrespective of tonnage, if not engaged in transporting freight or passengers, are not required to have their eyes tested. As a consequence, there are numerous craft on our waterways which are a continual menace to the safety of navigation, for surely a color-blind pilot of a sailing vessel of less than 700 tons or of a yacht or a large motor boat may be as much a menace to safe navigation as one on a larger vessel! Quite apart from the perhaps comparatively insignificant loss of life and property which might follow an accident to a small vessel, it has not infrequently happened that large vessels have been sent to the bottom as a result of collision with smaller craft and hundreds of lives lost, and millions of dollars worth of property sacrificed by the carelessness or incompetence of the navigators of the smaller boat. As an instance of this may be mentioned the following disaster:

"Feb. 11, 1907: Schooner *Harry Knowlton*, 317 gross tons, bound from City Island, N. Y., to Everett, Mass., coal-laden, collided with and sunk passenger steamer *Larchmont*, en route from Providence, R. I., to New York, in Block Island Sound. Collision occurred about 10:30 p. m. Schooner abandoned. Crew saved. Of *Larchmont's* passengers, 89 (estimated) were lost; also 44 members of the crew. . . ."

The government would do well, it seems to me, if it extended its jurisdiction over all navigators of vessels of any appreciable size.

REVENUE CUTTER SERVICE

In addition to conducting the examinations for federal pilots, the Marine-Hospital Service performs the same duties in connection with the Revenue Cutter Service. This service includes officers, cadets and enlisted men. The present requirements demand normal vision without glasses and normal color perception, for cadets and seamen, but no mention is made of the requirements demanded for promotion or of the repetition of the test; the visual standard for the enlisted men between decks, who are mere firemen or stewards, without the need of sharp vision, are the same as those for the true seamen on deck.

LIFE-SAVING SERVICE

The Navy Department controls the examination also of the Coast Guards. This picked body of men are examined annually and the department demands that they possess normal color sense and 15/20 uncorrected vision in each eye.

COAST AND GEODETIC SURVEY

Candidates for the Coast and Geodetic Survey are also examined by the Marine Hospital Corps, but in this department the Department of Commerce and Labor, under whose secretary the Coast and Geodetic Survey is operated, has not established any definite standards. A recent letter directed to the acting superintendent of the Coast and Geodetic Survey regarding the visual test for candidates into their service, brought the following reply:

When an eligible is certified to this office by the Civil Service Commission for a vacancy on the field force, his medical certificate is considered with the view of ascertaining whether he is physically able to stand the hardships and exposures incident to the field work of this survey. *There is no definite standard and each case is treated separately.* [Italics mine.—W. C. P.] Should there be any doubt as to whether a man is physically fit for our service, he will be required to stand a physical examination before an officer of the Public Health and Marine-

Hospital Service. Such an examination would be in order to get exact data regarding the health of the applicant and the question of whether he was suitable for appointment to this survey would still be decided by this office. You will see from this that the Public Health and Marine-Hospital Service is called on more to give facts in any case than to make a decision.

CIVIL SERVICE COMMISSION

According to a ruling of the U. S. Civil Service Commission, applicants for appointment to positions controlled by that service may procure a medical certificate from any physician, but the applicant may be required to pass a physical examination before an officer of the Marine-Hospital Service before appointment. I have been unable to ascertain that this commission has established any definite physical standards, and infer that the Marine-Hospital officers consider each candidate with a view to his general fitness.

STATE OR BRANCH PILOTS

Under an Act of Congress, of Aug. 7, 1789, it is provided "that all pilots in the bays, inlets, rivers, harbors and ports of the United States shall continue to be regulated in conformity with the existing laws of the states, respectively, wherein such pilots may be, or with such laws as the states may respectively hereafter enact for the purpose, until further legislative provisions shall be made by Congress."

This law is still in force, and as has been already said, these state, bar or branch pilots lay off the principal harbors and bring in and take out vessels in the foreign trade and in some states sailing vessels in the domestic or coasting trade. These pilots are amenable to state law or municipal regulation, and are under the immediate supervision of a board of pilot commissioners, or bureau of navigation. This board or bureau has the power to regulate the service of the pilots as it deems proper. The pilots themselves, however, determine in large measure their membership, recruiting their members very often from their own families, and have formed themselves into associations or unions for their protection and benefit. In popular phraseology, they form "a close corporation," and I have been told by a reliable informant that they employ a skilled lobbyist in Washington, who keeps jealous watch that none of their ancient rights or prerogatives shall be curtailed.

The federal government exercises absolutely no control over them, and there is no record in Washington of the requirements which the various states demand of them.

Being unable to obtain from the central government any information regarding the visual tests which state pilots must submit to before they are given their licenses, I addressed a letter requesting this information to the president of the board of pilot commissioners at each of our principal seaports. The answers received at once revealed that with but few exceptions the commissioners in the various states had failed to enact any definite visual requirements, but that the question of the sight of pilots was left to the pilots themselves. As a rule each pilot must serve an apprenticeship of six years under the personal observation of the active pilots, and it is claimed by the pilot associations of most of the states that by this method all candidates with defects of vision are eliminated, before they are recommended for appointment. In some of the states, and this is particularly true of those on the Pacific slope, the pilot commissioners refer the candidates to the Marine-Hospital Service, and each pilot is required to present a

certificate that he has passed the examination of that department. It is probable that the officers in charge of these tests demand the same requirements as they do of federal pilots.

The important harbor of New York is under the control of both New York and New Jersey pilots. In order that the Section may be informed as to the precise manner in which the pilots for that busy harbor are examined, I shall read the very lucid replies which were sent me by Mr. D. A. Nash, the Secretary of the Board of Commissioners of Pilots of New York:

In examining pilots for eyesight (which is done at least once each year and oftener if occasion seems to call for it) we use the regular test cards of printed letters prepared and used by opticians for that purpose. We also use the buoys in the upper bay (of which a number are visible from this office) and for readiness or quickness of observation the numbers of passing elevated railroad cars, etc., the examiner using a binocular glass to verify the answers where necessary.

For colors we use the system of worsteds as recommended in the work of B. Joy Jeffries.¹

I may add that owing to the custom in vogue here of choosing the candidates for apprenticeship from the young men already working as hands on the pilot-boats, it is not often that a color-blind person or one who is below the normal in eyesight reaches the point of applying for registry as apprentice. They are eliminated before that time arrives.

We are not aware of any special tests demanded by the State of New York.

The only provision of law known to the board relating to the examinations of the eyes of the New York State bar pilots (whom alone we have to deal with) is by-law No. 12, d, as follows:

By-Law 12, d.—"Every candidate shall be examined in the presence of the board as to color-blindness and as to his general eyesight and hearing, and before each renewal of his license to pilot he shall undergo a like examination by the secretary. A pilot considered deficient or doubtful by the secretary shall be referred to the board for final action. A person held to be deficient on the above points by the board shall not be entitled to receive a license."

There are no special oculists who test the eyes of the pilots. If a pilot is not satisfied with the decision of the board, he may go to an oculist of his own choice or to the U. S. Examiners for Steamboat Pilots and submit their report to the board.

The final decision rests with the board, who may or may not agree with the findings of these supplemental examinations.

It will be noted that no definite standard of vision is required and that the tests are made by laymen, the services of an oculist being only resorted to in case of dissatisfaction from an adverse ruling.

The tests for the harbor of Boston are made by the Pilot Commissioners themselves, under the following requirements: The candidates must have "good sight for distances, and must be able to tell the colors of light at a distance."

The Delaware River is under the control of Pennsylvania and Delaware pilots. Until a few months ago the Commissioners of Navigation of Pennsylvania submitted candidates to examination by an oculist, appointed by them, and required that each applicant for a license possessed "good vision and normal color perception." As far as I can learn, therefore, the Pilot Commissioners of Pennsylvania were the first to demand that the examination of the pilots under their supervision be conducted by a competent oculist. The standards, however, were faulty, for the requirement of mere "good vision" was too vague and placed too much responsibility on the personal judgment of the examining oculist. It must be said, however, to the credit of the

1. Houghton, Mifflin and Co., Boston, Mass., publishers.

commissioners, that as soon as their attention was called to the defect, they speedily determined to right it, and asked me to prepare what I considered to be a proper and adequate standard, requesting also that a standard for hearing be added to complete the examination of the special senses.

The following report was accordingly presented to them in February of this year and adopted by them shortly afterward. It is only fair to say that while I personally assumed the responsibility of fixing the standards which are embodied in the report, I took the precaution of submitting them to Dr. Alexander Duane, of New York, and Dr. Charles H. Williams, of Boston, from both of whom I received valuable suggestions. The requirements which follow represent, therefore, in a measure the views of both of these gentlemen as well as my own, and I wish to take this opportunity of publicly acknowledging my indebtedness to them.

VISUAL REQUIREMENTS FOR PILOTS

For apprentices and all candidates for pilots' licenses, normal color-sense is requisite; any imperfection disqualifies.

A candidate must be able to read 6/6 Snellen with each eye separately and without glasses. The eyes must be free from disease and from appreciable muscle error.

All pilots under 50 years of age must submit to reexamination every three years; those over 50 years, every year. More frequent examinations shall be made by order of the Commissioners of Navigation in all cases in which there is a tendency to deterioration in sight or hearing.

If at any of these later tests, vision has deteriorated to such a degree that uncorrected vision does not equal at least 6/9 in one eye and 6/24 in the other, and corrected vision 6/6 in one eye and at least 6/9 in the other, or if there be any imperfection in the color-sense, the license shall be revoked until vision and color-sense have attained the above standard.

REMARKS

All tests shall be made by a competent oculist, acting under appointment of the Commissioners of Navigation. A complete record of each examination shall be kept on file at their office, and a copy shall be given to the person examined if he so desires.

In the event that the official oculist of the board has judged a candidate or pilot unfit for the duties of pilot by reason of defective sight or hearing the candidate or pilot may have the right to submit himself for examination to another oculist not connected with the board, and in the event that the opinion of this oculist differs from that of the official oculist, the board shall request the two oculists just mentioned to select a third who shall be acceptable to the board. A third and final test shall then be made in the presence of representatives of the board, and the decision arrived at, at this test and conference shall be final.

The examiner will observe that the Snellen charts used in the tests shall be exhibited to the candidates at 6 meters exactly, that a good light is thrown on the card and that "care be exercised that each eye is tested separately. During the tests, charts with different lettering shall be employed in such a manner that the candidate cannot become familiar with the letters on the various lines." The color-sense shall be tested with tagged Holmgren's wools and also by a Williams lantern. A selection of confusion colors with the true colors when tested with the green test skein or with the rose test skein of the Holmgren worsteds, or a confusion of red and green with the worsteds or with the lantern, will reject.

DIRECTIONS TO BE OBSERVED IN MAKING THE TESTS FOR COLOR SENSE

1. *Holmgren Colored Worsteds Test.*—Place the whole number of colored worsteds on a table in good clear daylight. Put the green test skein at a distance of about two feet from the other colors and ask the man to be examined to select from the colors all that look to him like this test skein and place them

beside it. Have him understand that he is not expected to find an exact match for the test skein, but that he is to choose all the colors that appear to him of the same general color as the test skein, both those that are lighter and those that are darker in shade. If he does not easily understand what is wanted, let the examiner himself select the colors; then, having returned them to the general heap and mixed them thoroughly, let him call on the person examined to repeat the selection. This demonstration will not enable a man who is defective in his color perception to select the colors correctly, and he may pick out, as looking to him like the test skein, some of the greens and also some of the gray or brown confusion colors.

Note the numbers on the tags of the skeins selected as similar to this green test skein, and also whether the selection is prompt or hesitating.

Return all the colors to the heap, mix them together, then place the rose test skein apart from the rest, and have the person examined select as before all the colors that look to him like it, and note the numbers on the skeins so selected.

No names should be used in connection with this worsteds test, which should be based simply on a comparison of colors.

2. *Williams Lantern Test.*—Turn the rheostat so as to have a medium illumination from the two incandescent lights in the lantern, or, if an electric current is not available, light both lamps, taking care not to turn them up so high as to smoke, then place the lantern 20 feet from the person to be examined about on a level with his head, the side of the lantern carrying the disc with the colored glasses facing directly toward him, and darken the room. Place the shutters so that three lights are shown at one time through either the largest or the medium openings, turn the disc slowly, and have the person examined call aloud the names of the colors as shown, designating them thus, "middle red, right red, left green," etc. Under each color is a distinguishing number which is lighted at the same time as its color, and as the examination proceeds the examiner will note the number of the color shown and the name given to it.

After all the combinations with three colors at a time have been shown, change the shutters so as to show one or two lights at a time and revolve the disc again, noting the results as before.

Calling a green light blue, or *vice versa*, calling a yellow red, or, with the smallest opening failing to see the color of No. 7 (cobalt blue) which transmits less light than some of the others, will not be considered serious mistakes, but the confusion of red and green with each other will reject.

STANDARD FOR HEARING

Words or numbers spoken by the examiner in an ordinary conversational tone of voice must be repeated correctly by the person examined standing with closed eyes 20 feet from the examiner. This degree of aural acuteness must be maintained not only at the initial test for candidates, but also at all subsequent ones.

DIRECTIONS TO BE OBSERVED IN MAKING THE TEST FOR HEARING

Have the room as quiet as possible, place the person to be examined at a distance of 20 feet from the examiner, with one ear toward him. Have the man close his eyes and put his finger over the further ear, then have him repeat aloud the words spoken by the examiner in a conversational tone, and record the distance in feet at which this can be done correctly. Have him turn the other ear toward the examiner and repeat the test.

THE DEPARTMENT OF STATE

The following is an extract from information which has recently, i. e., May 4, 1910, been prepared for the guidance of those surgeons of the Army, Navy, or Public Health and Marine-Hospital Service, who are to conduct, when necessary, physical examinations of candidates for foreign service appointments.

Regarding the matter of vision it may be said that defective vision possible of correction by glasses and not due to ocular disease is not considered as physically disqualifying a candidate for appointment, although in the report of the examina-

tion note should be made of the character of the defect, if any, and of the possibility of and necessity for correction. If correction be found to be necessary, the Department of State will take the matter up with the candidate.

THE NAVY

Candidates for admission into the U. S. Naval Academy are required to have normal visual acuteness, i. e., 20/20 for each eye without the aid of glasses. A normal color sense is also requisite. On graduation a vision of 15/20 in each eye is requisite, capable of correction to 20/20, and freedom from ocular disease. To quote still further from a letter received a few weeks ago from Dr. C. F. Stokes, the Surgeon General of the Navy:

A candidate for the Medical Corps, for civil engineer or for chaplain of the Navy must have 12/20 in each eye, capable of correction to 20/20, and be free from ocular disease.

An applicant for the Pay Corps and the Naval Hospital Corps must have 15/20 in each eye and be free from ocular disease.

For the Navy Nurse Corps (female) there are no specific requirements beyond what is the opinion of the examining surgeons necessary for the proper performance of work.

For appointment as a commissioned officer in the Marine Corps, 18/20 in each eye is required, capable of correction to 20/20.

The requirement for enlisted men in general is 15/20 in each eye. On subsequent enlistment and, in certain instances, on first enlistment, as in the clerical force (yeoman branch), this requirement is sometimes waived, providing there is no disease.

For officers on promotion, the board must certify that the officer is able "to perform efficiently all of his duties at sea."

A moderate error in refraction, if fully corrected by glasses and there is no ocular disease, does not necessarily reject in the upper grades. All candidates are examined for color-blindness before promotion, and defective color-sense is always a sufficient cause for rejection.

Applicants for the position of gun-pointer (already enlisted) must have 20/15 with the right, or aiming eye, and a minimum of 20/20 with the other eye.

These, so far as I am aware, comprise the visual requirements which are in force in the public service of the United States, and with the exception of those projected for the Army and of those already adopted by the Navy, and the Department of State, I think it will be agreed that there is much need of elaboration and standardization. The requirements for pilots, both federal and state, are surely inadequate, and I am convinced myself that were the subject thoroughly investigated the loss in the past of many lives and of much property could be traced to faulty vision in pilots and navigating officers.

Anticipating some action by this Section on this question which is of such vital importance to the country, I have already done what I could to establish better standards, as you have heard. The Surgeon-General of the Marine-Hospital Service is endeavoring to have the Department of Commerce and Labor adopt the standards of which I have told you, and I have written to a prominent oculist in the largest ports of each coast state, enclosing a copy of the Pennsylvania laws and urging the enforcement of similar laws by the commissioners of navigation in his state for the proper control of state pilots.

It will not be an easy matter, however, to influence legislation either in Washington or the various states; nor indeed do the standards whose adoption is urged cover the entire field of our public services. I would suggest, therefore, if it meet with the approval of the Section, that a commission be appointed from its body, to cooperate with the Department of Commerce and

Labor, and with the Marine-Hospital Corps, to establish proper standards and to devise proper tests in making the examinations, for the examination of the eyes of all candidates in their several departments, the duties of whose position demand sharp sight and healthy eyes. And in order that the purposes of this commission may be ratified and supported by the Association at large, I would advise that the representative of this Section in the House of Delegates be empowered to present the matter to that body for its official sanction.

2049 Chestnut Street.

THE ROLE OF PATHOLOGY AND PHYSIOLOGY IN PREVENTIVE MEDICINE*

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Preventive medicine, in the nature of things, may well be accepted as the criterion of the state of scientific medicine. That it is again coming into its logical place is due to the great progress which has been made during recent years in all branches of scientific medicine, and in this development the studies in pathology and physiology have been of fundamental nature.

In this symposium I take it that the part assigned to me is to refer in a concise way to the prominent facts contributed through the avenue of pathology and physiology which have influenced preventive medicine. I recognize that this will be largely a review of well-known facts, and I fear there will occasionally be some encroachment on the subjects treated in the other papers of the program.

In the memory of many now living, our conception of the nature of the disease has been revolutionized, and with the recognition that its ultimate processes, whether produced by external agents or the result of modifications in the normal metabolism, are chemico-physical, we have reached a standpoint from which to approach the problem of prevention and cure in a rational way.

TUBERCULOSIS

In no phase of preventive medicine has the knowledge of causative conditions been a greater factor than in the prophylactic control of tuberculosis, the real advance dating from the time when the etiology and infectivity of this disease were established.

It was an interesting fact that the true significance of the pathologic lesions and their infectivity were recognized long before the tubercle bacillus was demonstrated. Klencke in 1843 first demonstrated the infective nature of tubercle by producing general miliary tuberculosis in rabbits by inoculating "tubercle cells." The importance of his discovery was not recognized until in 1865, when Villemin by carefully controlled inoculation experiments on rabbits confirmed Klencke's views and demonstrated beyond doubt the infectiousness of tubercle by transmission from animal to animal.

Klebs in 1868 demonstrated by animal inoculation that the sputum of tuberculous patients contained an infective element which was capable of producing the disease in guinea-pigs. Chauveau in 1868 infected calves by feeding them bovine tuberculous masses. Gerlach in 1870 by ingestion experiments demonstrated

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

the infectivity of milk from tuberculous cows. Tappeiner, in a series of experiments beginning in 1877, demonstrated beyond doubt the infectiousness of phthisical sputum by inhalation experiments. Giboux, in 1882, succeeded in infecting rabbits by confining them in boxes into which tuberculous patients had expectorated, thus demonstrating long before Flügge's classical experiments, the dangers of sprayed particles of sputum of phthisical patients.

Thus the infectiousness of tuberculous matter in man and cattle, the dangers of tuberculous sputum and milk, the identity of the different tuberculous lesions in man and animals, and the established value of animal inoculation as a diagnostic aid were fully known before the birth of bacteriology and before the epoch-making paper of Koch in 1882 announced the discovery of the tubercle bacillus.

Koch confirmed Cohnheim's views as to infectiousness being the best criterion of tuberculous disease, but the establishment of the value of the microscopic search for the tubercle bacillus in diagnosis placed the prophylaxis of tuberculosis on a scientific basis, and demonstrated wherein the sources of danger existed. Subsequently Cornet contributed his exhaustive experiments demonstrating the dangers of dried sputum, indicating one of the principal modes of infection to be by inhalation of dried particles of expectorated material contained in dust from rooms inhabited by tuberculous patients. Later Flügge proved the danger of droplet infection in the immediate neighborhood of such patients.

The entire system of hygienic care of sputum and other discharges has been built up on these results, and in this newer knowledge of tuberculosis the field of general sanitation has been greatly enlarged; the recognition of the widespread prevalence of the infection, the great frequency with which healed lesions were found, and the knowledge of the importance of the character of the tissue soil, led to the adoption of present day sanatorium, open air, and dietetic treatment with all their beneficent results.

Results are at all times most convincing, and in no way is this more clearly shown than in the decreased death-rate from tuberculosis during the past three decades. In England there has been a decrease of 50 per cent. since the discovery of the tubercle bacillus. In New York City during the past twenty years the reduction in the death-rate from pulmonary tuberculosis has been nearly 40 per cent, and in Prussia the death-rate has been notably decreased, being 50 per cent. less in 1903 than 1885. In Boston, during the last thirty-one years the diminution in death-rate from tuberculous disease approximated 55 per cent., a decrease representing in actual saving 14,412 lives. Thus has the sum of human happiness been advanced by this phase of scientific medicine.

TYPHOID—CHOLERA—DYSENTERY

A second interesting chapter in preventive medicine is presented by the studies on typhoid, cholera and dysentery.

Before any successful warfare can be waged against an infectious disease it is of the highest importance to know with precision the nature of the agent which produces the disease, how it invades the individual, what its method of action is, how it is excreted, and finally how it perpetuates itself outside the living body.

The aforementioned diseases are associated principally in their symptoms and pathology with the intestinal tract, and in a search for the causes of these diseases it was but natural that the study should focus itself on the rich bacterial flora of the intestines. While the specific micro-organism for each of them has been determined, it has not been possible to produce the typical clinical picture in the lower animal, so that in a sense there has been a break in the chain of evidence associating a micro-organism with the disease process. Aside from the influence on municipal hygiene and general sanitation, these studies have added to our knowledge in another direction of far-reaching importance—in the discovery of the so-called Pfeiffer phenomenon.

In the early nineties Pfeiffer successfully produced a state of immunity in animals with typhoid bacilli and cholera vibrios in which they could stand, without symptoms, doses which at first would have proved fatal.

In further study he investigated the fate of cholera and typhoid germs introduced into the peritoneal cavity of immunized animals, the germs becoming clumped together and dissolved—the animal remaining in good health. This clumping, agglutination or dissolution, of disease germs under the influence of specific immune agents constitutes the Pfeiffer phenomenon, which in many ways has revolutionized our knowledge of infectious diseases.

A similar agglutination was observed in the serum of a sick human being, also likewise produced in a test-tube, and through the further elaboration by Grueber and Widal was brought forth the so-called Widal test, a diagnostic procedure most valuable in typhoid fever and many other diseases.

The importance of a specific reaction such as the agglutination phenomenon in the diagnosis of fevers with symptoms specially referable to the intestinal tract requiring the isolation of organism from the stool, is apparent.

It is impossible to say how many lives are saved annually and how much disease and suffering are prevented through methods of diagnosis alone made possible by the discovery of Pfeiffer's phenomenon. Indirectly it has influenced the development of protective inoculation, as furthered by Haffkine in cholera, Shiga in dysentery, and Leishman and Chantemesse in typhoid fever.

The rôle of chronic typhoid carriers is now recognized as an important factor in maintaining typhoid infection in a community, and the knowledge that such individuals may exist in any community will strengthen to a very great extent the hands of the health officers in checking the ravages of the disease.

INSECT INFECTIONS

It was also in the study of this class of infections that the transmission of disease by means of insects was specially developed. Much evidence has been brought forward in recent years to show that flies are frequent carriers of typhoid infection, and there can be no question of the proof of the same.

Fisher estimates the duration of life of typhoid bacilli in the bodies of flies as twenty-three days, and finds that they can live for some days on the head and legs of flies, illustrating that there are two ways of transmission—on the surface and within the body of the insect. During the Spanish-American War flies were important agents in the transmission of the disease, and since then a number of epidemics have been traced to this source.

Perhaps one of the most important contributions to modern scientific medicine is the demonstration of the mosquito as an intermediate host in the transmission of malaria and yellow fever. To do justice to this remarkable addition to our knowledge would mean a review of the wonderful accomplishments of preventive medicine in Cuba, South Africa, and other regions once veritable pest regions in the tropics.

To-day the Canal Zone of Panama, for years the grave-yard of the white man, has a death-rate as low as that of any city in the United States.

The problem of life in the tropics for the white man has been solved, since malaria and yellow fever may now be prevented by very simple measures. And these are all results of laboratory studies which have placed in our hands power for good never before wielded by man.

BIOLOGIC AND PHYSIOLOGIC STUDIES

In the diseases diphtheria and tetanus, a new problem is presented. While due to specific micro-organisms, special toxic products are generated, and by learning to cope successfully with these toxins by means of antitoxins, humanity has been greatly benefited. Both diphtheria and tetanus antitoxin sera are active prophylactic agents, while their curative virtues, especially the former, have robbed these diseases of much of their terrors. The use of specific antibacterial serums has thus far not been very promising except in the case of the serum of Flexner and Jobling for cerebrospinal fever, in which it has produced most beneficent results.

The use of bacterial vaccines has no such field of usefulness as the antitoxins just mentioned, either in a curative or prophylactic sense, yet there is reason to entertain a hopeful view as to the future, for the progress within the past ten years inspires the greatest confidence.

The principle of producing a protective immunity by means of vaccines consisting of an attenuated virus, as illustrated by smallpox vaccination, inspired the brilliant achievements of Pasteur, leading to his epoch making contributions in connection with chicken cholera and anthrax, and out of which arose the marvelous researches of Pasteur and his co-workers on the subject of rabies, demonstrating the location of the purest and most concentrated virus in the central nervous system, and gave to the world the wonderful protective inoculation which has reduced the mortality in man to a fraction of one per cent.

The rôle of vaccination for smallpox in preventive medicine hardly requires any emphasis as its efficacy is generally accepted. An epidemic of smallpox is practically impossible in a well vaccinated community. Vaccination is also the only scientific means of controlling smallpox, and its adoption in the place of quarantine, as is the case in Minnesota, is a most logical procedure.

The triumphs of preventive medicine are reflected mainly through the advances in pathology and its handmaid, bacteriology, mainly because it has been more prominently concerned with the disease of distinctly infectious or bacterial origin; but equal benefit has come through the avenue of physiology by a better conception of a large class of noninfectious conditions; for a better knowledge of the functions of organs and their perversions has led to most remarkable results.

Medical science has profited in all its aspects largely from the purely biological researches, and coincident with the progress in the infectious processes a closer study of cell-life has led to the recognition of a vital activity or special function of cells, as illustrated by a better knowl-

edge of the ductless glands. The attitude of Heidenhain in assuming a "vital activity" of epithelial cells resulted in considerable progress in the recognition of processes of secretion and intercellular changes accompanying them. It is an interesting fact that the newer knowledge of the ductless glands is largely the result of cooperation with the clinical domain, and in most instances the newer conception of the function of these glands was contributed by the clinician.

In Hermann's well known work on physiology published in 1883 it is stated in one line that we know nothing of the functions of the thyroid and adrenals, but in the same year the contributions of Kocher of Berne, in an extensive report of the after-effects of complete removal of goitrous glands recognized for the first time the significance of the thyroid in the animal economy. The light which was shed on the vital importance of these glands lit up the entire field of internal secretions which had remained impenetrably obscure for many past centuries.

The intense activity of modern experimental medicine managed to bring to light in less than ten years the following important facts: 1. The relation of the thyroid to natural myxedema and cretinism and the surgical conditions of a similar nature. 2. The effects of the radical removal of a goitrous gland can be obviated by leaving behind a small part of the gland. 3. The extract of the thyroid gland is capable of removing the symptoms due to the natural or artificial absence of the gland. 4. The unrestricted use of thyroid brings on a condition which is very similar to the pathological complex known as exophthalmic goiter or Graves' disease or hyperthyroidism.

Associated with the brilliant chapter of thyroid investigation is that of the relation of the parathyroid to tetany or post-operative spasms. Beebe has observed that the nucleoproteins of the parathyroids are capable of controlling this symptom. MacCallum and Voegtlin discovered that this can be controlled also by the administration of calcium.

Although our knowledge of the function of the suprarenals is far from complete, the relation of the medullary portion to various pathologic and toxicologic states, as chloroform poisoning, shock, nephritis, etc., is recognized. We know it to be an absolutely vital organ, and exerts its physiologic influence by emptying its secretion into the blood; the extract that is obtained has proved of immense practical and scientific importance.

The discovery by Marie of the relation of the hypophysis to acromegaly ranks with the preceding brilliant results.

The production of experimental diabetes by Von Mering and Minkowski by complete removal of the pancreas has established the control of carbohydrate metabolism by the internal secretion of the pancreas. As the knowledge of this function becomes more complete there is hope that the prevention and treatment of diabetes will be on a firmer foundation.

By the studies of these vital organs that three decades ago were thought to be useless, surgery, therapeutics and general medicine have learned many lessons, and the field of preventive medicine has likewise been enlarged.

It is only fitting that emphasis should be given to the recent advances in the physiology of the digestive organs, and their bearing on medicine and surgery, and indirectly on preventive medicine.

The researches of Cannon, Starling, and Pawlow on the movements of the stomach and intestines have greatly

benefited the surgeon and given the internist a better conception of digestive processes and their functional disturbances.

The work in the physiologic chemistry of nitrogen-purin metabolism by Chittenden and Folin has placed modern dietetics on a scientific basis, and this, with the important discoveries relating to the metabolism of the inorganic constituents, such as those relative to acidosis, have opened up a new and hopeful chapter in scientific medicine by suggesting a probable cause and preventive measures for nephritis, arteriosclerosis, diabetes, and other disturbances in nutrition.

CONCLUSION

The purpose and object of preventive medicine is to keep away from mankind those ills which interfere with the pursuit of happiness by crippling physical well-being. More exact knowledge of the cause and nature of disease enables the physician to prevent that damage, and therein lies the rôle of pathology and physiology in preventive medicine.

13½ South Dubuque Street.

THE RÔLE OF THE PHARMACIST IN PREVENTIVE MEDICINE*

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The words "preventive medicine" have, to a commercial druggist, a significance which he has yet failed to grasp entirely in its far-reaching influences. The term "preventive medicine," according to our lexicographers, means, "something taken, used, or done beforehand to ward off disease." While, in one sense, prophylactics are medicines which are intended to prevent disease, specifically the term "preventive medicine" has a much wider application and means "medicine that aims to ward off disease by properly directed personal and public hygiene."

While the pharmacist has not, and should not have, the proper equipment for diagnosis and the prescribing of remedies in serious cases, he should be imbued thoroughly with the principles of preventive medicine, and, as far as in him lies, bend his energies in the direction of stamping out disease in season and out of season.

It would at first appear that the pharmacist's rôle is necessarily a restricted one and again the public, in some quarters, do not look to the apothecary to advise them not to take medicine, but very frequently such advice, if tendered, is apt to arouse in the minds of a patient or customer a suspicion of ignorance, for the public have been trained to expect that medicines are to be paid for—advice never; and it cannot be denied that a patient coming from a doctor's office, after hearing him discourage the use of any specific medicine for the case, goes right to the drug store and asks the druggist to give him some relief from the hacking cough, because he thinks he cannot afford to travel to some more salubrious climate as his doctor has recommended.

It should always be the aim of the pharmacist to uphold the opinion of the physician, and if the customer demands a medicine which he has been in the habit of using to alleviate his cough it would be the duty of the pharmacist to say a few words against depending on the palliative, and certainly not encourage the patient to use such a weak prop. Just as a physician gives to a patient

the best advice possible, so should the pharmacist refrain from giving any suggestion which would lead to the building of false hopes.

The pharmacist, is, of course, in business; his daily bread depends on his sales and he cannot be expected to give medical advice, for if he does he will be very apt to hear from the physician on the ground that he is trenching on the latter's prerogative, and the conscientious druggist is frequently placed in a very delicate position, for he is at a loss to know to what extent he may go, in discouraging the use of some questionable mixture and just how much he ought to say. Cases are frequent in which physicians have been unwilling to prescribe any medicine whatever, in certain cases and recommend instead, exercise, pure air, pure food, pure water, sleeping in the open air, etc., and when the patient refuses, or finds it impossible from his environment to take this advice, he has bought some preparation from a pharmacist and obtained relief.

A wise and skillful physician would often find it judicious, in order to secure the patient's adherence to preventive measures, to prescribe some safe mixture in addition. Pharmacists have for centuries furnished medicines which are prophylactics—vaccine in all its forms, serums, antiseptics, sanitary appliances and many others, even including drinking water in bottles. The tendency of the modern drug store is in the multiplication of stock and branching out into side lines, many of which are not intended for the exclusive use of the sick.

Pharmacists can do much in the way of preventing infection from noxious germs. Cleanliness has come in with the antiseptics, and asepsis is being vigorously exploited. There have been several practices followed by careless and ignorant druggists which have undoubtedly increased the death rate in the past. Bottles and boxes which have been sent straight from the infected sick room to be refilled, bottles for holding oil emulsions, and other medicines, are usually sent back without cleansing thoroughly.

Corks are particularly dangerous as germ bearers; corks which have been in the mouths of tuberculous patients are often picked up by infants, and as everything goes into the mouth of a baby, is a source of infection. The habit of not removing the old label from the bottle or box coming from the sick room but pasting the new one right over the old dirt is a habit which has been animadverted against for centuries. Unclean, germ-laden hands and fingers in pharmaceutical manipulations should be carefully guarded against, and the disgusting habit, sometimes seen, of using the mouth as a cork phesser, by chewing the cork, is almost obsolete, thanks to continued preaching and teaching. Corks, bottles and boxes from infected sick rooms should be immediately destroyed; in fact, they should never leave the infected room. Prescriptions could easily be refilled by telephoning or having some member of the family, not infected, send a written memorandum giving the number and date of the prescription which is to be refilled, and then have the pharmacist send new containers.

The rejuvenation of corks, particularly for wine bottles and other beverages, is attended with considerable danger and whenever old bottles and boxes come into the store to be refilled they should be disinfected or sterilized, but far better destroyed, so that their power for increasing disease may be eliminated. The intelligent pharmacist, when he is once awakened to the necessity for taking up his daily burden in preventive medicine, will be enabled to do a vast amount of work of benefit to his fellows.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. BIERRING AND PROFESSOR REMINGTON

DR. W. A. EVANS, Chicago: Discussing the theme of Dr. Bierring, I should like to know whether it is your judgment that health departments should offer their laboratories in the diagnosis of venereal diseases? Are the procedures conclusive enough and at the same time simple enough to be within our field?

Discussing Professor Remington's subject, has not the time come to standardize the sale of antitoxin? Antitoxin for curative purposes should not be given promiscuously any more than flour or quinin. On the other hand, it should not be sold for \$1.50 a thousand. The way to standardize its sale is, first, to abolish "returns." This will require machinery for quick moving of the product. Second, to reduce the advertising and introduction expense. Third, to make its sale a cash transaction. Fourth, to have but two sizes—1,000 units and 5,000 units. Such a system should reduce the price to 30 to 40 cents a thousand, retail. Antitoxin at this price would save lives through (a) prompt use, (b) larger dosage.

DR. LESTON H. MONTGOMERY, Chicago: Pharmacists, while dispensing our prescriptions, are careless sometimes about removing the collection of dust and other detritus about the corks and necks of their bottles. I have noticed this. Take simple syrup, for instance; there may be deposits from flies and other filth which has accumulated. On more than one occasion I have gone behind a prescription counter and courteously and quietly called the attention of the druggist to such conditions. If a bottle prescription is filled, detritus, debris, dust, germs of disease, etc., may thus be dispensed. You will notice this as you examine and shake the medicine in the bottle at your next visit to your patient. Particularly is this true in collyria. In fact this condition of sediment is often present in other prescriptions that are dispensed. Of course not all registered pharmacists are careless in this respect, some are sanitary and scrupulously clean and remove whatever collection or deposit there may be about the cork or mouth of a bottle before they dispense a prescription.

I am careful about permitting a druggist to refill my prescriptions, unless he has my consent. I have printed on my blanks these words, "This prescription must not be refilled without my order," or the words, "Non repetatur" printed thereon, unless it is something that is very ordinary and doesn't do any harm.

To illustrate, I have a patient, a lady, who has a mitral lesion, who is taking my prescription. She has a friend who has heart disease. My patient, desiring to favor her friend, gave the number of the prescription on the label of her bottle and she had the prescription dispensed and nearly died as the result of taking that medicine. She evidently had a different condition altogether from that of my patient.

DR. GEORGE EDWARD FELL, Buffalo, N. Y.: There is more to this subject than most of us appreciate. Some of my prescriptions have been filled for seven years after they were made. I heard of it by my patients telling me that they had been giving that prescription around, since it was made, which was seven years before. If such things do occur why not have the pharmacists help a little and disinfect the bottles that come back, if they are going to allow them to come back? I don't believe it is within our power to prevent the druggist from refilling prescriptions, or the patients from taking them back, even if we do lay down our law and request them not to do it. If it could be done, it would be a great help. I believe the pharmacists can do a great deal to aid us in preventive medicine in many ways.

DR. SENECA EGBERT, Philadelphia: In regard to the paper on pathology and physiology, I think we should all appreciate the wonderful assistance that has been given preventive medicine by these two sciences which, as the gentleman said, were thought thirty or forty years ago to be of no practical benefit to the doctor. Some of us have been advocating the exploitation of the knowledge that we now have. There is no question that we need to do that to get popular education; but we have only opened the door, as it were, in the matter of original research; and while I do not believe

that the ordinary medical school is the place for carrying on all of the original research work, I do believe that every one of us ought to support those who are capable of doing it and who are doing it as admirably as our colleagues in the profession have done in the past two or three decades.

With regard to the paper of Professor Remington, there is another line in which the druggist, it seems to me, can be of tremendous assistance to us, and that is in his counter-prescribing in venereal diseases. If the druggist will not do that, and if he will send the patient to the doctor, there is some chance not only of prophylaxis but of education, a chance that otherwise might be missed. I do believe that this is one phase of the pharmacist's work wherein a great deal of good can be done, by telling a man or a boy who comes to him for a cure for diseases of that kind: "No, I am not the man for you. We pharmacists, as well as the doctor, realize that to-day those diseases are no longer to be looked on as harmless troubles; they are diseases dangerous to you and to the community as well, and I cannot prescribe for or treat you."

DR. WALTER L. BIERRING, Iowa City, Iowa: I appreciate that in the field of preventive medicine we are making use, in a coordinate way, of the knowledge of the different fundamental principles which apply to the entire subject. There is also much in the suggestion of having laboratories associated with boards of health or with other bodies interested in preventive medicine, in order that special research work may add greatly to our knowledge along this line, and at the same time benefit the cause of general sanitation.

In Iowa we have been conscious for some time of the fact that there is much discrimination and hardship imposed by the high price of antitoxin, so the department of health has taken on itself to introduce a method of furnishing antitoxin, not free, but at a reasonable price. It has made arrangements with several manufacturers of antitoxin so that it is able to furnish the same at a rate of about 40 cents per thousand units; a supply is kept on hand at different depots throughout the state to facilitate its being easily obtained and arrangements are also made to have it transferred readily from one city to another as the particular depot may run short in its supply. In that way it is kept constantly fresh, and kept moving, which was a point specially mentioned in this discussion. By this method there can be no thought of pauperizing the citizen, yet it brings the antitoxin to such a low figure that no one will have an excuse for not receiving its benefit; and again, where the people are indigent and unable to procure it the county or municipal authorities will furnish it as needed.

I am sure what was said by Professor Remington in reference to the opportunity for infection in a modern drug store is very applicable, and therein lies a duty for physicians to do away with the pernicious practice of having prescriptions refilled, thus making such a medium as the drug store a source for the spread of infectious diseases.

PROF. JOSEPH P. REMINGTON, Philadelphia: The American Pharmaceutical Association has taken up the matter of what is called the declaration of the prescription; and the mooted question of the ownership, which has been discussed for so many years, is likely to be taken up in a business-like way. It is the intention to refill prescriptions when indicated by the physician, and only on his approval. You will see, later on, I have no doubt, published in THE JOURNAL of the American Medical Association, just what action was taken recently at the meeting at Richmond, Va.

I believe that if this Section, or the American Medical Association, would get up a properly worded request or circular which could be sent to the druggists throughout the United States, calling their attention to causes of infection in dispensing prescriptions, it would be received in a proper spirit. It is very desirable to call the attention of the druggist and the physician to this subject, so that causes of infection may be reduced to a minimum. Let the physician go in and say, if any bottle, box or container comes from an infected home destroy it at once and have the prescription refilled with new and clean containers. It only needs a little education on the part of physicians and pharmacists to remedy the evil to a very great extent.

AUTO-INTOXICATION AND ALLIED INTESTINAL TROUBLES

AS A POSSIBLE CAUSE OF CERTAIN VASCULAR AND FUNCTIONAL DISTURBANCES OF THE EYE *

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This paper is the result of a personal conversation in October last, the participants being our Chairman and Secretary and myself. We met in Philadelphia, at the invitation of the Chairman, to discuss the program for this meeting.

Among other matters, ocular disturbances from various toxic influences were considered. The papers which have already appeared were reviewed, and especially the pioneer work of de Schweinitz with his chemical helpers, Edsall and Fife. These researches, it will be recalled, had to do with inflammatory lesions, especially those of the uveal tract. We thought of lid, conjunctival and various functional anomalies of the ciliary structure, things of daily observation, which resist local treatment, are prone to relapse, and which are not uncommonly associated with those remote symptoms which de Schweinitz has aptly defined as "conjunctural." That is, one finds associated with certain lesions of the lid structures or functional derangement of the anterior uvea—just the history and symptoms which, if associated with uveitis, would lead one to think that the internist (having at command chemical means to investigate defects of metabolism) could throw light on etiology. Is there more in this than association? If so, how far has the physiologic chemist enabled us to go?

This question was put to Dr. Edsall, and he was invited to follow an interrogatory paper with one explaining what we want to know. His reply was that he felt that, after his contributions, accessible to all, there was nothing more definite to add. We felt that it was useless to seek farther. Still, our own clinical observations led us to think the matter worth presentation, and this position has been, since October, confirmed by a paper by Dr. J. F. Shoemaker¹ of St. Louis. The lesions of the adnexa which I wish to consider are those of the lids and mucosa. De Schweinitz describes the former in his text-book under the title, "Hyperemia of the Lid-Border (Hyperemia Marginalis, Vasomotor Blepharitis)." He says:

The margins of the lids have an unpleasant, slightly swollen, red appearance. Exposure to cold, wind or any strain on the accommodation causes a feeling of heat followed by burning and lachrimation. The redness is caused by the passive congestion of the superficial blood-vessels. Scales or crusts are absent, or but sparingly present.

Discussing the etiology of blepharitis, without specially mentioning the vasomotor variety, but evidently with it in mind, he says that it may follow in the wake of an exanthem, may result from ametropia, "inflammations of the tear-sac, stricture of the nasal duct, and obstructive disease of the posterior nares, although it may be difficult to decide whether the blepharitis has caused the closure of the lacrimal passages or whether this has developed the blepharitis." Dr. Shoemaker, presenting the clinical conjunctival picture, with a possible autotoxic cause in view, says:

As a rule, the cases I have observed have very little or no secretion. The eyes feel uncomfortable, particularly with their use in artificial light, and the blood-vessels of the bulbar conjunctiva are considerably engorged. The diagnosis must be made, however, from the history of indigestion or constipation, together with other symptoms of autointoxication. Some of these symptoms are drowsiness, especially after eating, dizziness, periodic attacks of headache, certain diseases of the skin, particularly of the erythematous or urticarial types, various nervous disturbances and aching and stiffness of the muscles which might be confused with, or attributed to muscular rheumatism. The patients may not complain of any of these symptoms, but inquiry will usually develop the fact that they suffer with one or more of them.

Before attempting to couple the lid and conjunctival disturbances and discussing the possibility, in certain cases, of an autotoxic cause, I want to add a third class. I allude to recurrent circumcorneal injection, recurrent asthenia of the ciliary muscle, spasm of accommodation, and the condition known as hysterical accommodation spasm, or cyclospasm. It is well described in Posey and Spiller's book, "The Eye and Nervous System." It has been studied specially by Parinaud, and his description is given:

The spasm may be partial or total, unilateral or bilateral. It is similar to that produced by eserine, and has as its chief characteristic a displacement toward each other of the punctum proximum and the punctum remotum—that is to say, there is a diminution of accommodation at both ends of the line.

Here, then, are three vascular or functional troubles which we see constantly in routine practice. To connect them with remote causation demands first, painstaking exclusion of known causes. For instance, in hyperemia of the lids, lacrimal obstruction, as de Schweinitz observes, is frequent. As he says, again, it is not always easy to say which stands as cause, infection to the lids from the excretory apparatus, or to the latter from the lids. I am sure that often the course is toward the lids, and that at least one factor can be readily overlooked. Definite accumulation of mucus in the sac or persistent epiphora are easy enough; but lesser grades of obstruction are not so readily diagnosed. Ziegler told us about this years ago, and devised probes of great value. I am sure that infection, or, possibly, irritation, from the nose can often do no more than cause catarrhal swelling of the mucosa in the canaliculus or even shutting of the puncta. Chronic hyperemia of the lids often disappears after dilatation of the puncta and canaliculus without going into the duct at all. Nitrate of silver solutions of 2 to 5 per cent., applied to a swollen turbinal, and a somewhat persistent use of such a mildly stimulating agent as an oil solution of menthol in the nostrils, often cure chronically congested lids. Injection of the conjunctiva, as described by Shoemaker, stands in close relation to lid hyperemia. The structures are but parts of one vascular area.

Circumcorneal injection, in the absence of corneal lesions, of course, focuses attention on the anterior part of the uveal tract. This brings us to the most important of the recognized causes of lid and conjunctival hyperemia and functional disturbances of the ciliary muscle, namely, refraction and muscular errors, and the varied relations they have to each other. It is not my purpose to do more than mention this causative factor. In such an association, for instance, as hyperopia and exophoria, one could naturally look for relapsing ciliary cramp; but every clinician knows that cases occur in which his best efforts, along line of recognized causes, fail to cure.

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Shoemaker, J. F.: Etiology and Treatment of Certain Forms of Conjunctivitis, *Am. Jour. Ophth.*, January, 1910.

If at first relieved, the patients relapse. Why do they not stay cured?

A second essential, if relapsing eye troubles are to be attributed to remote disturbances, is the more or less constant association of ocular lesions or derangement of eye function, with symptoms of the supposed causative disease. This association, I take it, is what de Schweinitz means by the presence of certain things which lead one to "conjecture" a toxic cause. If one of the three classes of eye trouble occurs when the patient is constipated, when he has periods of neuralgia, when he is suffering from what he calls "nervous dyspepsia"; if local remedies do not relieve, or, at the most, give only temporary relief; if all these symptoms, including those of the eye, clear up when the remote trouble is removed, then we are justified in suspecting causative relation. If these simultaneous eye and remote troubles occur not once, but repeatedly, and if they occur not in one, but in many patients, this suspicion becomes a conviction. I do not consider it necessary to prolong my paper with narration of cases; brief allusion to one will suffice.

A man of 25, total refraction error D 1. of hyperopia, with less than D 0.5 astigmatism with the rule. Vision immediately after cycloplegia distant vision (d. v.) 20/15; near-point accommodation 12 cm.; orthophoria, d. v., exophoria 3° at near.

Gradually, from this state of things, he develops a reduction of d. v. to about one-half, with recession of his near point to 30 cm. With or without correction of his low error, this thing occurs. Why? Invariably, in three or four such experiences, he has given a history of pain after eating and constipation; there has been foul breath, and he has learned that this association exists. He leads a sedentary life, and makes his living by keeping books. Homatropin restores normal eye function, and so long as he keeps his diet regulated, and constipation does not overtake him, ciliary cramp does not return.

This case is narrated because I have linked ciliary disturbances with those of the lid and its mucosa. Dr. Shoemaker has covered these sufficiently.

While we can eliminate recognized causes, and prove clinical association, we cannot as yet fulfill a third condition—explanation of pathogenesis. We call it auto-intoxication; and there are good reasons for so doing. For instance, we see conjunctival hyperemia and "vasomotor" blepharitis in diseases of known infectious origin; note their occurrence in the beginning, through the course and after the exanthemata. We see all grades of ciliary involvement, from asthenia of transient type to complete and stubborn paralysis, after various infectious diseases, typhoid fever, chicken-pox, scarlatina and diphtheria. These lesions we attribute to toxins, and it is to be specially noted that since the advent of diphtheria antitoxin we see fewer cases of postdiphtheritic paralysis.

Secondly, in diseases not themselves infectious, but capable of forming toxins, we note similar eye troubles. Nephritis, diabetes and occasionally pregnancy serve as examples.

Thirdly, there is good reason for thinking of the intestines as the source of this autotoxic influence. After the proved association between uveitis and intestinal disorders, the work of de Schweinitz and Fife seemed to afford chemical proof of a pretty satisfactory nature. Cases of pupillary derangement, clearing up after expulsion of intestinal parasites, are recorded. Bruns of New Orleans recited such a case in discussing my paper² on ocular neurasthenia at our meeting in 1907. There is the peculiar edema of the conjunctiva

in trichinosis. In two cases I saw during the past winter, the edema involved the bulbar conjunctiva, between the limbus and external canthus, presented a peculiar yellowish reflex, and was totally inexplicable, till fever, blood examinations, etc., cleared the diagnosis. In the first volume of Osler's "Modern Medicine" this eye symptom of trichinosis is recorded.

The reason, then, for calling these eye disturbances, associated with various intestinal disorders, "autotoxic" is that they bear a strong similarity to eye troubles of either known general infectious nature, or to those seen in systemic diseases capable of producing toxins. Shoemaker attributes the conjunctival congestion to the fact that the conjunctival "substantia propria consists of adenoid connective tissue which is richly supplied with blood-vessels and lymphatics, the walls of which are irritated, and become diseased by these poisons." He quotes Deland as authority. Such effects on blood-vessels, with subsequent exudates and hemorrhages, are well-recognized results of toxemia. So, too, are varying degrees of interference with muscular function, from slight impairment to complete paralysis. In the presence of changes, characteristic of toxemia, it is but natural to think of the latter as a cause, in spite of the fact that we do not know the toxin at work or are even sure that there is any such influence. Autotoxic diagnosis is a matter of inference, though undoubtedly the most probable, in our present state of knowledge. This is as far as we can go till the physiologist and chemist blaze the way. So far they have not given us very dependable diagnostic means or explained pathogenesis much beyond the hypothetical stage, at least so far as my limited knowledge goes. A recent publication shows their own uncertainty. Among the Oxford medical publications of last year is a most interesting and instructive book by Arthur F. Hertz, entitled "Constipation and Allied Intestinal Disorders." Speaking of auto-intoxication or copremia, Hertz says:

There is no entirely satisfactory method of estimating the activity of bacterial decomposition in the intestines. Jaffé thought it could be measured by the amount of indican, and Baumann by the amount of ethereal sulphates in the urine. The results obtained, however, give no definite indication as to the degree of autointoxication, which may be present, as different putrefactive bacteria produce different products, some of which are comparatively innocuous, whilst others are excessively poisonous. Hence an increase of the quantity of indican or ethereal sulphates in the urine is no evidence that excessive production of other more poisonous products is occurring, and on the other hand, it would be quite possible for severe intestinal auto-intoxication to occur in the complete absence of any change in the urine which could be demonstrated by Jaffé's or Baumann's methods. Both indican and ethereal sulphates have been found to be increased in some cases of constipation, but by no means constantly . . . and Strauss and Philippson found a diminution in the ethereal sulphates as often as an increase. When excess of these substances is present in the urine of constipated individuals, it may just as well be due to the increase in the quantity absorbed, owing to the longer stay of the feces in the colon, as to an increase in the quantity produced. . . . There is thus at present no chemical evidence that an abnormal amount of decomposition occurs in the intestines of constipated people. . . . It is, however, possible that even in the absence of any increase in the production of poisons, the slow passage of feces through the intestines might lead to autointoxication by giving more time for the absorption of products of bacterial decomposition. But definite evidence is still wanting to show that the products of ordinary bacterial decomposition in the intestines can give rise to poisonous symptoms on absorption.

Hertz then discusses the poisonous effects of ethereal sulphates, sulphuretted hydrogen, "which is normally

present in traces in the colon," ammonia, the amido-acids, indol, and concludes that all are only slightly toxic. Regarding the latter, he thinks that the amount apt to be absorbed in constipation would not affect a healthy individual, but that those "with an abnormal nervous system" would react. He sets aside ptomaines as the cause of toxic symptoms in constipation because none has been found in the urine or feces of persons suffering in this way. He says:

Volatile fatty acids and most of the products of bacterial decomposition of carbohydrates are rapidly oxidized in the body so that they are not likely to produce any poisonous effects. . . . It is, of course, possible that the symptoms are due to the absorption of some unknown poisons. But no accurate means have yet been devised for investigating this possibility. . . . Though there is no evidence that such a condition as copremia exists, yet many of the results of constipation are more easily explained by the theory of auto-intoxication than in any other way. This is particularly the case with some of the nervous symptoms. . . . This auto-intoxication is probably due to the abnormally long period during which the feces are present in the intestines, and to the consequent excessive absorption of poisons, and not to any increase in bacterial decomposition.

Relative susceptibility is then discussed. The liver is "the chief defense against auto-intoxication," and its power to convert toxic into harmless substances is presented. Even after absorption, no great harm is done if the eliminative organs are in good shape.

Lastly, Dr. Hertz states that the ultimate effect of toxic absorption depends on the state of the organ itself. He emphasizes the harmful effects of constipation in producing functional diseases and on "a depressed nervous system."

I have introduced these views of Dr. Hertz because they seem to me full of significance. Reduced to their simplest terms, they indicate that "auto-intoxication" from constipation and other intestinal disorders is but a working hypothesis, and seems to explain, better than any other, clinical findings. They also throw great doubt on the value of usual methods of chemical investigation. There are certain interesting clinical facts which I have observed, having some bearing on this contention. Exactly the same ocular symptoms which I have detailed have been observed in chronic appendicitis. Two of the patients suffered from repeated attacks of appendiceal pain before operation, and functional eye symptoms came immediately after their subsidence. One girl developed in different attacks "cyclospasm," a manifest astigmatism which disappeared after cycloplegia, and finally a chorioidal exudate. There were no symptoms of "auto-intoxication" and no constipation. The interesting point is that the patient had an inflamed adherent appendix removed four years ago, and has had no functional eye disturbance since. I alluded to this case in my paper on ocular neurasthenia in 1907. Of course, it is possible that the pain produced neurasthenia, and that the so-called "hysterical accommodation" resulted from this. Still, the girl is a remarkably level-headed person, and not in the least hysterical, in the ordinary acceptance of the word. The other patient was an educated woman in the thirties, who presented repeated and inexplicable lengthening of the punctum proximum. I knew nothing about her appendix symptoms till she came to tell me about a prospective operation. This was two years ago. I have seen her frequently, as she has come at my request, and I have never found relapse of the functional eye trouble. The only abdominal symptoms in both cases were those of appendicitis. I cannot connect auto-intoxication with

these, and incline to the belief that there is some other path to eye irritation.

Again, in cases in which there has been association of eye anomalies with constipation and its toxic results, I have had the urine carefully studied. In some of them the chemical findings were negative; however, treatment directed to the intestines is keeping the patients well. Allusion has been made in this paper to unrecognized infection as a cause of the symptoms under consideration. I have now under care a woman, 63 years of age, who has had for twelve years peripheral lens striations of the non-progressive type. She preserves normal central vision. She is gouty, a free liver—or, rather, has been—and came to me this time for obstinate conjunctival congestion of the right lower lid. She brought with her a diagnosis of constipation, indicanuria, auto-intoxication, etc. There were no manifest symptoms of lacrimal trouble at first, and for several weeks we worked along autotoxic lines without improvement. Then she developed a not very annoying epiphoria, and a probe introduced into the duct showed no stricture. The canaliculus was not split. But from this time, under the one probing and repeated washing of the sac, there has been steady lessening of the chronic conjunctival hyperemia. By contrast the case shows the essential difficulties of diagnosis.

In conclusion, I think that there is enough association between the eye disturbances named and manifest symptoms of auto-intoxication from constipation to justify the belief of causative relation. There is reason to think that the same eye troubles can follow intestinal lesions which do not essentially produce toxic products. It seems that the physiologic chemist is not yet in position to help us much in proving the diagnosis, and that until he is we must study these obstinate cases from a clinical standpoint only. If we are ever to explain them or to relieve them, we must view the eye as the receiving as well as the sending end of what we call remote disturbances.

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ABSTRACT OF DISCUSSION

DR. J. F. SHOEMAKER, St. Louis: The three forms of ocular trouble mentioned in Dr. Woods' paper are frequently observed. Each has more than one etiologic factor, and I believe that intestinal toxemia will be recognized as the underlying cause in an ever-increasing number of cases. I am unable to furnish any chemical proof in the way of evidence that definite poisonous substances are to be found and isolated in patients suffering thus; but, I believe that carefully collected clinical evidence is of great importance and that there are such substances. I have observed more cases of the second class, viz., those of patients suffering with conjunctival hyperemia and inflammation, than of the other two classes. In more than one case of conjunctivitis, after I had exhausted my best efforts in the way of local treatment with little or no benefit, great relief was soon obtained by treatment of an existing constipation or indigestion. In such cases a hearty dinner will often undo more in a single night than can be accomplished in weeks in the way of curing by local treatment, particularly if much meat and alcoholic stimulants are taken. Some of these patients often are more uncomfortable at night than during the day. Several patients have complained of awaking during the night with quite severe pain in the eyes, and most of them have more or less discomfort when they first awake in the morning and state that they have some difficulty in opening their eyes, not on account of the presence of any pus which glues the lids together, but on the contrary, on account of the lids being so dry that they adhere to the globes.

While I have, of course, had cases of the third class, in which the ciliary body is affected, with circumcorneal injection,

spasm of the ciliary muscles of subnormal accommodation, I have not been able to satisfy myself that they were caused by auto-intoxication, although I have more than once suspected it. I have at present, however, a patient who is a confirmed dyspeptic and suffers with constipation, and who, whenever she uses her eyes for near work for a short time, complains of a sharp pain in her left eye as though she had a foreign body in the eye. The most careful and painstaking correction of her refraction and muscular imbalance does not relieve the trouble. I am convinced that the cause of the irritation is some toxic substance absorbed from the intestinal canal.

One of the most chronic and persistent cases of conjunctivitis I have ever had was in a young woman who had a chronic appendicitis. She was troubled with constipation, so that I do not know that the appendicitis had anything to do with causing the conjunctivitis, but as we are told that constipation is sometimes caused reflexly by a chronic appendicitis, this latter condition may be the primary cause of some of these troubles. R. T. Morris reports a case of double central chorioiditis occurring in a man who had a chronically inflamed appendix. With the removal of the appendix the inflammation of the chorioid stopped short and cleared up with practically normal vision. Some patients may present symptoms of auto-intoxication and yet deny that they have any indigestion or constipation. I believe that the explanation in some of these cases is that while the bowels move every day, perhaps, yet the evacuation is not complete and enough fecal matter is retained in the large intestine to produce a toxemia. In one of my cases there existed a spastic condition of the sigmoid which prevented the complete evacuation of the bowel, and at times caused quite stubborn constipation. It was not until a rectal examination was made by a competent internist that the true condition was found and treatment was satisfactory. In such cases ordinary laxatives or purgatives are of little value in treating the constipation.

I am of the opinion that in the great majority of cases the trouble arises because meats or protein foods are not properly digested, thus permitting excessive putrefaction to occur in the intestines. Some people seem able to digest properly only a small quantity of meat, while others may not be able to digest any well. As Thayer and Turek have pointed out, in such conditions a few grams of meat may be enough to produce severe symptoms from the poisons formed, and while the amount of poison may be very small it may, nevertheless, be quite injurious because of its being constantly repeated.

DR. JUDSON DALAND, Philadelphia: To demonstrate absolutely the relationship between intestinal toxemia and functional or organic ocular diseases would necessitate the isolation and experimental administration of these toxic substances and the reproduction of these lesions. The character of the toxic substance or substances, unfortunately, is not known, and therefore we are compelled to fall back on general clinical evidence, which is strong enough to produce a belief in a causal relationship, in certain cases, between, for instance, the condition known as biliousness and certain ocular disturbances.

To-day intestinal toxemia may be viewed from two standpoints; one, concerned with aberrations or variations in metabolism, and a second concerned with putrefactive changes in the contents of the colon—a statement which shows the vast field of possibilities. The diagnosis of intestinal toxemia or of disturbed metabolism is often not difficult. The simplest and most common form of intestinal toxemia is that symptom-complex known as biliousness. Occasionally there exists what may be termed fecal retention; the bowels move daily, but the colon is never empty. A simple method exists by which this condition, so frequently in association with intestinal toxemia, may be determined, namely, by irrigating the colon after the morning evacuation of the bowels; if more than a half teacupful of feces is recovered, fecal retention is present. Feces thus obtained should be examined microscopically and chemically.

The chemical sign of intestinal toxemia of putrefactive origin that has attracted the most attention is the presence in the urine of indican or the indoxyl sulphate of potassium. It is now believed that this substance in itself is non-toxic,

but plays the rôle of an indicator, indicating that substances formed during the process of putrefaction have been absorbed. These substances are exceedingly variable in number, combination and quantity, depending on the character and amount of foodstuffs ingested, and variations in digestion. Certain of these substances may be detected by a skilled organic chemist after prolonged labor; while others are unknown or unrecognizable. It is well known that intestinal toxemia may exist in the absence of indicanuria or skatoluria.

DR. J. L. THOMPSON, Indianapolis: I have many patients coming to me who tell me that they have been to their physicians and that the latter have been treating them with electricity and similar methods, and I look into the eye and see no edema, no hemorrhages and no trouble with the optic nerve; I have written to the patients' physicians to give half a large tumblerful of a saline purgative every day, every two days or twice a week, and then have them come to see me again. I do not have them stop the electricity. The patients come back in three weeks greatly changed. When one is in doubt the bowels should be cleaned out thoroughly.

DR. L. CONNOR, Detroit: I remember the custom of the late C. R. Agnew, many years since, when I was studying ophthalmology under him, of telling patients suffering from one or more disturbances of the eye which were related to abdominal infections that they should so modify their living habits as to restore an equilibrium in their metabolism. For this he prescribed systematic walking, with such clothing as made it easy; appropriate attention to food, the alvine evacuation, the care of the skin; and I observed that the patients recovered from their ocular disturbances. The same practice is continued to the present. Dr. Woods told me recently that his patients with corneal trouble did better if they lived in the open air. In short, many ophthalmologists have recognized these conditions though unable to trace to their exact causation, in spite of the successful empirical treatment. As a stimulus to farther study Dr. Woods' paper has done us good service. We may hope for better results as every doctor gains a minimum of real ophthalmic practice by his working knowledge of infectious diseases of the eye and its simple refractive defects. The observations of 135,000 physicians added to those of the 3,000 ophthalmologists ought to furnish material for conclusions nearer the facts of the relations of both gross and fine lesions of the eyes to defective abdominal metabolism.

DR. A. G. BENNETT, Buffalo, N. Y.: In my experience as oculist to the Children's Hospital, Buffalo, I get numberless cases of inflammations of the conjunctiva and cornea that improve almost immediately as attention is directed to the intestinal tract. This is the type of case that I was taught to treat with syrup of the iodid of iron and yellow oxid of mercury ointment. My experience has been that when you look after the intestinal tract you do not need very much local treatment.

DR. R. D. GIBSON, Youngstown, O.: This paper brings out the necessity of the oculist's having had a general medical experience before going into the eye specialty. The man who has not undertaken to practice medicine before he goes into eye-work does not appreciate the effect of intoxications on the eye. We find that children with phlyctenular conjunctivitis are children with bad digestive troubles, that have been given sweets to eat, that have fermentation. Many years ago I learned that calomel given in small doses, frequently repeated, was almost a specific for this trouble. It was the eliminative effect of the calomel on the alimentary canal. There is much virtue in the admonition of the old Scotchman, "Fear God and keep your bowels open."

DR. S. L. ZEIGLER, Philadelphia: This question of auto-toxemia and the perverted metabolism from which it arises brings us face to face with the great problem of the pathology of the future, which will undoubtedly turn our attention from the study of bacteriology to the study of physiologic chemistry. It seems to me that chemotaxis is the pathogenic process that originates many of the diseases we are studying, and possibly many of those that we have been ascribing to bacterial invasion. Some years ago I wrote a paper on the relation between errors of diet, errors of metabolism, intes-

tinal errors, and the causation of corneal ulcers. There is no question but that the ingestion of sweets, tea, coffee, and other articles of that character, will create a disturbance that is first manifested in the intestines or in the stomach, from there is transmitted to the nose and thence through the tear-duct to the eye. That is rather a circuitous route for the transmission of this vicious influence, but that is the course it takes. Eales of Birmingham has long since called attention to intra-ocular hemorrhage due to constipation, and I believe we should carefully consider the important rôle that constipation bears to these disturbances. I reported some years ago a case of this character in which the constipation sometimes lasted for ten days. It originated in a severe attack of dysentery. There were recurrent ciliary hemorrhages, and following these a cataract, which was afterward operated on successfully. In the other eye there were hemorrhages that became organized and remained there.

As the remedy for these conditions we should first cleanse the bowels, thus relieving the constipation and removing a great deal of this deleterious material from the system. We also have the nose to clear out, thus improving the breathing process, and thereby increasing the oxidation of the system. We likewise have the skin to look after, and very often much can be accomplished by sweats, whether by means of vapor baths, electric light baths, or pilocarpin. These are all problems that we must consider, and it seems to me desirable that Dr. Woods should continue this investigation and bring it to a consummation. In order to do this successfully he will undoubtedly require the cooperation of the physiologic chemist. This will be extremely difficult to accomplish for two reasons; first, it is almost impossible to procure these biologic products in large enough quantities for analysis, and second, the skilled physiologic chemist is still a *rara avis*.

DR. HIRAM WOODS, Baltimore: In a case just seen, a man 38 years old, had lost one eye some years ago by accident. He had been in the hands of half a dozen people trying to get relief from asthenopia. He said that at times, without warning, his vision would become obscure. He unloaded a whole lot of glasses; among them one was a plus 1 cylinder, 150 degrees, and another, a plus cylinder at 80 degrees. All had been given by capable men, simply because when he went to these men he had this manifest refraction. Under prolonged scopolamin cycloplegia the only error was $1\frac{1}{2}$ spherical. With that he had cl. v. 20/15, and accommodation from 8 out to 20 inches for Jaeger 1. I told him to come the next time he had an attack. When he came, the first thing I did was to put a drop of atropin in the other eye. He had an anterior synechia there and I wanted to see if that was the source of irritation. That did not help him. The second time, vision had fallen from 20/15 to 20/50; his accommodation range was 11 to 15 inches. He was constipated, had a foul breath odor, and was very irritable. That man was given calomel with a saline purge and allowed to go on with his work. He came back after two days with a 20/15 cl. v. and accommodation restored. I have got him in the hands of an internist who has put him on a restricted meat diet, intestinal antisepsis. I believe this is an example of many cases we will find if we look for them and study this question of metabolism.

DEVELOPMENT OF THE TEMPORAL BONE*

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I wish to describe briefly some of the points of difference between the os temporale of the infant and that of the adult.

In the os temporale of the nine-months fetus¹ the ossification of the three centers is well advanced, so that they are all attached to each other, but neither firmly nor throughout the whole of their adjoining edges. The

squama temporalis is thin and light. In its posterior portion is seen the series of perforations which mark the outer wall of the antrum tympanicum (which is often incorrectly called the antrum mastoideum but which distinctly is not a part of the processus mastoideus). The processus zygomaticus is light. The fossa mandibularis is merely a shallow depression below the posterior extremity of the processus zygomaticus. The middle and posterior roots of the processus zygomaticus are distinct, but the anterior root has not yet appeared.

The annulus tympanicus is a mere ring. The bony meatus acusticus externus does not yet exist. The annulus tympanicus is attached at this stage by both anterior and posterior extremities, though but slightly. The anterior and posterior tubercles are indicated, but are so small that unless their later development were known they would not be worthy of being named. The greater part of the annulus tympanicus is not yet attached to the os temporale.

Part of the pars petrosa is well developed. The processus mastoideus is wholly absent. There is no processus styloideus. The fossa jugularis is very shallow. The sulcus sigmoideus is discernible, but is shallow and not well marked. The part of the bone that fills in the space under the canalis semicircularis superioris has not yet appeared. The petrotympanic fissure, the canaliculus chordæ tympani, the tuba auditiva and the semi-

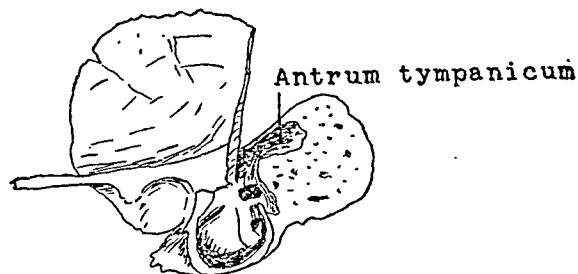


Fig. 1.—Temporal bone of a 9-months-old fetus, cut to show the location of the antrum tympanicum. Note that the antrum lies wholly above the level of the zygoma.

canalis tensoris tympani are not yet separated from each other, but all form one common cleft between the annulus tympanicus and the pars petrosa.

DEVELOPMENT OF THE ANNULUS TYMPANICUS

In the os temporale of the 9-months fetus (Fig. 1) the annulus tympanicus is a mere ring just wide enough to contain the groove for the attachment of the membrana tympani. It is attached at its two extremities to the squama temporalis alone. There is no attachment to the pars petrosa.

In the temporal bone at about the time of birth (Fig. 2) the annulus tympanicus has become fused with the pars petrosa, which partly overlaps the lower posterior part of the annulus. The attachment has taken place, not through any growth of the annulus, but through a growth of the pars petrosa outward to meet the annulus. The tuberculum tympanicum anticum and the tuberculum tympanicum posticum are distinctly marked, but are not prominent.

In the 3-months-old child there is a distinct growth of bone from the annulus toward the common opening of the tuba auditiva, fissura petrotympanica and semicanalis tensoris tympani.

In the 6-months-old child the annulus has widened considerably at the lowest point and also at the two

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

¹ Throughout this article, reckoning of the age of the fetus is by lunar months.

tubercles, so that its opening is no longer circular, as it was at birth, but is elongated in the vertical diameter.

At a year old and at 1 year and 3 months old the widening has progressed, but is still most marked in the lower part of the region of the posterior tubercle, so that there is now a marked projection of this tubercle into the opening of the annulus.

At a year and 6 months of age the growth of the annulus is not only toward the opening of the annulus, but also horizontally outward at the posterior part of the annulus, so that this part has a rough outer margin similar to that presented in the adult bone for the attachment of the cartilage.

From this age on the anterior and posterior tubercles gradually approach each other, until, at 3 years, they have met and fused together, still leaving an opening which represents the original opening at the annulus tympanicus. While this opening usually closes, it does not always do so, and one not infrequently sees adult bones with this defect present.

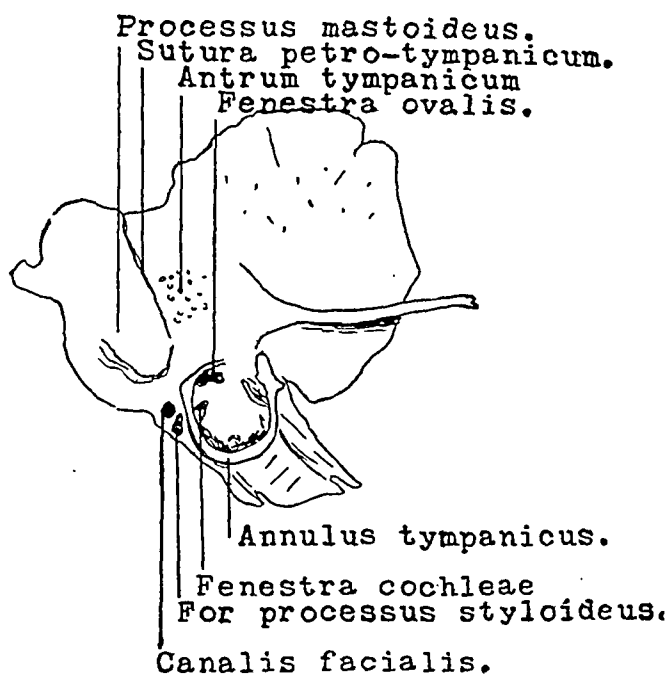


Fig. 2.—Temporal bone of the infant at birth, somewhat inclined, showing the first rudiments of the mastoid, the perforated outer wall of the antrum, and canalis facialis opening on the outer wall of the bone about the middle of the annulus tympanicus. Note that the petrotympanic suture lies between the antrum and the developing mastoid.

In the temporal bone of the new-born infant the free margin of the annulus is smooth, but from the age of 1½ years the outer margin becomes thickened and roughened.

In proportion, as the annulus widens and closes, the fossa mandibularis deepens from the shallow marking seen in the new-born infant to the deep cavity seen in the adult bone.

DEVELOPMENT OF THE PARS MASTOIDEA

There is no pars mastoidea in the fetal bone and very little in the child up to the age of 1 year. The first marked indication we have of a mastoid appears at the age of 1 year and 3 months. It is true that, before this time, there has been some change in the shape of the portion which is subsequently to become the pars mastoidea. It has extended outward as the posterior attachment of the annulus has widened.

In a child of 1 year and 3 months there is a distinct bulging outward at about the level of the upper posterior extremity of the annulus. This bulging continues until, at 2 years, the projecting pars mastoidea has reached

down to the level of the inferior surface of the pars petrosa.

LOCATION OF THE SUTURES IN THE OS TEMPORALE

In the nine-months fetus there is but one suture, the petrosquamous, in addition to the attachments of the annulus tympanicus to the squamotemporalis, which latter are known as the tympanosquamous anterior and tympanosquamous posterior.

In a child at birth there is, in addition, the petrotympanic suture anterior and the petrotympanic suture posterior, which are directly continuous with the tympanosquamous anterior and tympanosquamous posterior respectively.

By the growth of the pars petrosa the bony tuba auditiva and the semicanalis tensoris tympani have become shut off from the canaliculus chordæ tympani and are wholly surrounded by the pars petrosa. The canaliculus chordæ tympani lies between the tympanic plate and the pars petrosa. The petrotympanic fissure is what remains of the anterior squamotympanic suture. A portion of the pars petrosa becomes wedged in between the tympanic plate and the pars squamosa, dividing the squamotympanic suture into two portions, which become the squamotympanic anterior and the petrotympanic

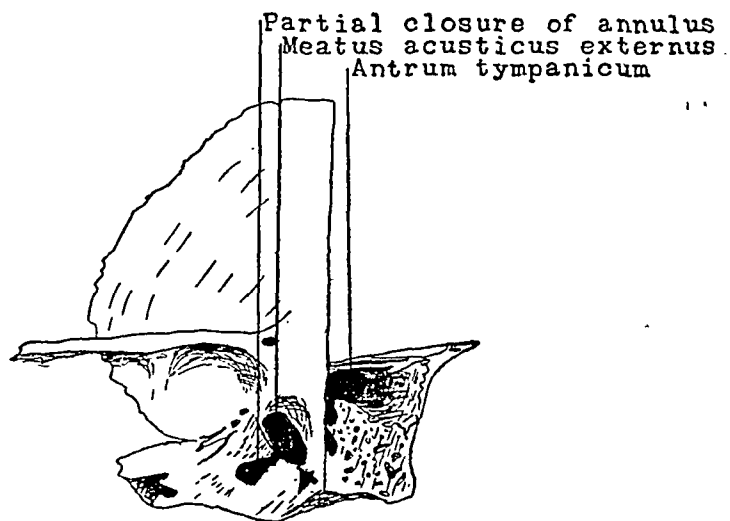


Fig. 3.—Temporal bone of a child of 2 years cut to show the location of the antrum. Note that the antrum lies wholly below the level of the zygoma.

anterior. The squamotympanic posterior eventually becomes obliterated and the petrotympanic posterior is shown only by a narrow line which still contains a canal for the transmission of vessels.

In the course of time all the sutures become obliterated more or less, but that portion of the petrotympanic suture lying behind the antrum tympanicum may be traced in the adult bone by the denser part of the pars mastoidea corresponding to its location. The cells lying in front of it are comparatively small, while those lying behind it are apt to be large. This suture thus forms the dividing line between the antrum tympanicum and the larger mastoid cells. The obstruction to the mastoid cells by this suture explains why mastoiditis beginning in the antrum tympanicum is so often much more destructive near the tip of the mastoid than near the antrum.

The squamopetrous suture along the superior surface of the bone is quite a wide cleft in the new-born child. It leads into the tympanum and antrum through the tegmen and, as is well known, by its failure to close leaves those dehiscences which predispose to meningeal and brain infections.

LOCATION OF THE CANALIS FACIALIS IN THE YOUNG BONE

The course and shape of the canalis facialis do not vary so much in themselves as in their relation to the surrounding parts, and this is chiefly dependent on the development of the pars mastoidea.

In the new-born child and for several months afterward, that is, until the mastoid begins to develop, the opening of the canalis facialis is on the outer surface of the pars petrosa of the os temporale. It lies just outside and behind the opening in which the processus styloideus is afterward formed. It is about opposite the middle of the annulus tympanicus and 2 mm. posterior to that ring. Its location is such that, if the ordinary incision for the complete mastoid operation were made, the nerve would be in great danger of division. This location explains why facial paralysis of the baby is caused by instrumental delivery. With the development of the pars mastoidea at the age of 1 year and 3 months it begins to recede from the outer surface of the os temporale and to be covered by the overhanging processus mastoideus until in the adult bone it lies fully 1.5 cm. within the plane of the outer surface of the processus mastoideus.

LOCATION OF THE ANTRUM TYMPANICUM IN INFANCY
AND ITS MIGRATION IN LATER LIFE

In the temporal bone of the new-born child the recessus epitympanicus is much smaller comparatively than it is in the adult. Instead of extending across the whole width of the tympanum it occupies a little less than half that space and extends directly upward from the middle of the tympanum.

The antrum tympanicum lies directly above the recessus epitympanicus and extends obliquely upward and backward from it. Thus the antrum tympanicum drains into the top of the tympanum instead of into its upper posterior part, as in the adult. In the 9-months fetus (Fig. 1.) the antrum extends from 2 mm. in front of a vertical line through the posterior limb of the annulus to 2 mm. posterior to that line. It is wholly above the level of the processus zygomaticus. In the child of 2 years (Fig. 3) it has come to lie wholly below the level of the processus zygomaticus and has assumed the adult position with reference to the surrounding parts. This migration is well advanced at the age of 1 year and 3 months.

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ABSTRACT OF DISCUSSION

DR. GEORGE E. SHAMBAUGH, Chicago: Instead of beginning at the bottom and working up, it is the rule to-day for the men entering special fields to begin at the top, and comparatively few ever do work down and acquire that knowledge of the fundamentals of the special field which should constitute their preparation for the clinical study of cases. Too often the thing the prospective specialist aims to do is to see and treat cases, and as a rule it is the operations, the most difficult part of treatment, that he wants to undertake first. Too few of the men who begin in this way ever do master the fundamentals of their specialty, the detailed knowledge of anatomy, the embryology, the physiology of their subjects, which is the sort of training that makes it possible for them to become expert clinicians. The internist does not begin by attempting to treat diseases of the liver, nor the surgeon by operating on the liver. They first become grounded in embryology, the anatomy and the physiology of the organ, and then they are in a position to study intelligently disease and to apply treatment. The specialist in otology or ophthalmology ought to begin in the same way to acquire first of all a knowl-

edge of the fundamentals of his subject. The dentist, who is working in a highly specialized field of medicine, is much more careful to get adequate training in the fundamentals of his specialty, although the clinical problems he has to meet are in no way so difficult to deal with as in our specialty. It is only here and there that a specialist undertakes, as Dr. Boot has done, to work up the fundamental anatomy of the temporal bone. This is something that cannot be acquired from text-books nor from drawings; it can be learned only by the handling of the preparations themselves.

ADAPTABILITY OF SCIENTIFIC INFANT-
FEEDING TO GENERAL PRACTICE*

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Realizing that human milk is the best food for babies, the pediatrist determined to his own satisfaction long ago that, this failing, the best substitute is properly adapted cow's milk. To state that the percentage, fractional or American system of infant-feeding is a panacea for the nutritional ills of infants during the first year of life would be to adopt a fallacy and create a position readily made untenable. To regard this as the best and easiest means of adapting cow's milk to the digestive capacity of the individual is rational and scientific. It affords the best way of carrying the greatest number of feeding cases, both sick and well, to a successful issue. That it is not too intricate and complex for adoption by the general practitioner can be proved by demonstrating that failure results, not from the method, but from causes independent of it. For convenience these causes of failure may be grouped under three headings.

I. CAUSES OF FAILURE DEPENDENT ON THE PHYSICIAN

For many of these causes of failure the pediatrist himself is to blame. In his teachings and in his writings he has made the subject too complex. Didactically he has taught not enough principles and too many methods, and in the hospital wards he practices none of them, leaving the matter of feeding to the inexperienced intern, confining his own efforts to his private patients and the consultation room. The result has been that nearly all hospitals for children are carrying many semimarantic infants who neither gain nor lose, and who are finally taken home or die from some intercurrent affection. From this the general practitioner takes his cue that perhaps the matter of percentage feeding is too intricate and too complex for the pediatrist himself. This is not the case. It simply emphasizes a fault, almost unpreventable, that even in the best-conducted institutions the number of infants to each nurse is too great. The result is that the patients suffer from the lack of that intimate contact and perfect hygiene which is desirable and necessary to the successful conduct of any medical case, and, further, that the pediatrist is unable to give the time and study to each individual patient.

In this connection I believe the subject of sufficient importance to recommend that each large hospital and college should have on its staff a pediatric dietitian.

* Read before the North Branch of the Philadelphia County Medical Society, and by invitation before the Southeast Branch of the same society.

The multiplicity of algebraic monstrosities proposed and taught as methods of milk modification, "simple and practical," have justly bewildered the practitioner and he eagerly takes refuge behind the directions plainly printed on the label of some patented food. The laboratory modification of milk, while theoretically ideal, is most often impractical and too expensive and will not be considered here.

For home modification the practitioner, as well as the pediatricist, should become familiar with one, and by no means more than two, methods of milk modification. These can readily be acquired with a little patience and they soon become a part of his therapeutic equipment. I would recommend Holt's top-milk method for the majority of cases in private practice, and Baner's cream-and-milk method for institutions and the poorer class of private work and dispensary patients as there is no waste. The more these methods are used the clearer and more simple they become.

The physician should know the normal constituents of human and of bovine milk, and the physical as well as the chemical and bacteriologic differences. Without giving these their full value, failure will be absolute. It is insufficient to diagnose indigestion; he must designate the variety of indigestion, whether it be the protein, fat or sugar which is at fault, and act accordingly. He must seek to adapt the milk to the baby, not the baby to the milk, remembering that each baby is a law unto itself. He must pay no attention to the child's age with the idea of determining its digestive capacity or the amount to be fed or the interval of feeding. It must ever be borne in mind that cow's milk was never intended by Nature for babies. Chapin's researches in comparative physiology and biology have abundantly proved this. Therefore, the nicety of his percentage adjustment will fail unless the physician notes the physical differences between the curd of bovine and that of human milk. In this connection, as will be emphasized later in more detail, he must apply to his percentage formula the advantages to be derived from sodium citrate, cereal decoctions, whey and pancreatization¹ (peptonization). Milk must be clean. Accurate percentages will not prevent infection from a dirty milk.

Many practitioners, as well as pediatricists, have a mistaken idea as to just what percentage feeding means. I have no patience with that teaching which claims that it is a matter of importance as to whether the amount of any one of the different constituents varies a quarter or a half of 1 per cent. one way or the other. Such fine adjustment is not only unimportant, but impossible. The completed preparation, I venture to say, rarely if ever would analyze to correspond to the written formula. Nor is this necessary. Any attempt to secure this would lead to disaster and confusion and justly bring the system into disrepute. What percentage feeding means and affords is a simple and scientific way of thinking and of adapting the milk to the infant's digestive capacity. The first formula is always an experiment, and by percentage feeding any one or more of the various constituents can be diminished or increased. It cannot transform cow's milk into human milk, but with it the physician can attack rationally and scientifically that element which is responsible for

the indigestion, feeling that subtle satisfaction which one experiences when doing a thing for a reason.

Though I cannot give detailed reasons, I would advise against too frequent weighing, too frequent inspection of the stools, too frequent changing of the formula, to which the two former lead, and against attaching too much importance to the presence of a few curds and some mucus and the occasional occurrence of a green stool.

The physician cannot afford to be lazy. The results and the rewards are just as great as any in medicine. He who can transform a shriveled, discolored, weakened mite into a pink, fat, laughing babe has accomplished as brilliant a thing as surgery ever did. This percentage feeding, if properly interpreted and properly applied will do more frequently than any haphazard system of feeding or patented infant food. The physician must not scorn to teach the mother the importance of details or to soil his hands by going into the kitchen and showing her how to make up the first formula and the various milk diluents. He will have an apt pupil who will eagerly follow in the lead of his enthusiasm.

II. CAUSES OF FAILURE DEPENDENT ON THE MOTHER AND ENVIRONMENT

Other things being equal, the most important thing on which a successful issue depends is the intelligent cooperation of the mother—with emphasis on "intelligent." Hysteria and meddlesome interference have no place in the therapeutics of pediatrics. The mother must choose between her medical adviser and her well-meaning but poorly informed relatives and friends and her own notions as to what is right or wrong. She must promise not to interfere, to carry out orders to the letter, to believe that black is white, or to dispense with her physician and to assume the responsibility herself. This cannot be too strongly urged on the mother of a prospective patient. To my mind maternal control is the most important preliminary. Attention to details, quantities to be fed, intervals of feeding, the time consumed in taking the milk, position of the infant while feeding, picking the baby up after feeding, cleanliness of the nipples and bottles, are all matters which make or mar a successful outcome and the blame must not be placed on the system of feeding, whatever that may be.

Environment is a potent factor for good or for evil. Proper clothing, proper cleanliness of the mouth, proper ventilation and sufficient out-door airing are essentials that cannot be neglected. Too much coddling and playing with the infant ought to be avoided. Infants should be expected neither to be amusing nor amused. A little wholesome neglect is very often the best tonic to a poor digestion. Percentage feeding cannot hope to cope with ignorance and squalor met in the home of the slum dweller any more than can aseptic surgery. The practical demonstration of a valuable and proved theory is here impossible. I have encountered many instances, however, in this class of patients in which, with patience on the part of the physician, the cooperation of the mother was obtained and with surprisingly brilliant results. Kerley has had a similar experience amongst a large number of dispensary patients and tenement dwellers in New York City.²

III. CAUSES OF FAILURE DEPENDENT ON THE INFANT

There are some infants who cannot digest cow's milk in any form. It is true that these cases of idiosyncrasy

1. The term "pancreatization" is used advisedly, as students and some practitioners associate the term "peptonize" with pepsin. A peptogenic milk powder contains 15 grains of sodium bicarbonate and 5 grains of extract of pancreatin. The terms pancreatize and pancreatization, therefore, explain this.

2. Kerley, C. G.: Tr. Sect. Dis. Children, American Medical Association, 1906.

are rare, and yet they do occur, and unless recognized lead to disaster. Other patients there are who possess an intolerance for fat. Whenever persistent vomiting occurs three common etiologic factors should be seriously considered, viz.; faulty hygiene, fat or sugar indigestion and congenital hypertrophic pyloric stenosis. Any one of these, alone or in combination, must be proved or eliminated. The character of the vomitus, together with the time of occurrence, associated with other symptoms, will usually admit of a correct conclusion and suggest the remedy. In these cases an easily performed and too much neglected procedure is stomach-washing.

Premature infants, congenitally weak ones, rachitic and marantic patients, all present feeding problems different from those of the ordinarily healthy bottle-fed baby and require peculiar and delicate manipulation to start them on the road to recovery. This can best be secured through careful percentage feeding, rationally applied. In this connection it must be emphasized that properly to prescribe a formula for an infant not only includes the giving of correct percentages for the case in hand, but also the ability to overcome the difficulties of digestion peculiar to the individual and the other causes of failure which have been described. It may not be amiss to discuss here the more important details of procedure when ordering the first formula, and the methods employed in meeting the feeding problems encountered in the more difficult cases.

IV. DETAILS OF FEEDING

In an endeavor to determine the infant's digestive capacity the history of every child should be carefully investigated with reference to its weight at birth, its present weight, the causes for discontinuing breast-feeding, the various foods and milk combinations which have been tried, its appetite, quantities fed and the interval of feeding, the presence or absence of vomiting, constipation, diarrhea, the color, odor, frequency and consistency of the stools together with the persistent presence or absence of curds, fat, mucus, pus or blood. The patient's physical state should be noted with special reference to nutritional changes indicating marasmus, rickets or scurvy. Trouble is rarely encountered when transferring a healthy breast-fed infant to the bottle.

In weaning these infants it is best to determine the strength of the mother's milk by analysis and then to endeavor to supply a mixture, slightly weaker, especially in protein and fat, than this analysis would indicate. Sudden weaning must be avoided wherever possible. One bottle should replace a breast-feeding for two or three days and the effect noted on the stomach and bowels; then two bottles are given, and so on until the entire breast-feeding is replaced. The various percentages are now increased in the same gradual manner until at a year, or thereabout, the infant is receiving plain cow's milk. The entire process of weaning should occupy from four to six weeks. Frequently the results at weaning are quite as good where an analysis of the maternal milk cannot be previously made. Here a formula representing percentages of protein, fat and sugar somewhat weaker than those of average breast-milk (P. 2 per cent., F. 4 per cent. and L. 7 per cent.) may usually be employed with success as the first formula.

In prescribing the correct percentage of fat no two cases can be treated alike. It is therefore difficult to arrange any general rule. Vomiting an hour to an

hour and a half after feeding is a prominent symptom of fat indigestion, especially when the vomitus is sour, smelling like rancid butter. Associated with this, as a rule, are frequent green, greasy movements, usually acid in reaction and containing lumps of undigested fat. Less often the stools may be constipated, greasy, white and foul. Thus having, in a rough way, determined the infant's fat capacity, the percentage is decided on. It is best to commence with 1 per cent. to 1.5 per cent. and gradually to increase the amount as tolerance is established. The quantity should never exceed 4 per cent. and in the majority of instances it is wise not to go beyond 3.5 per cent. Some infants cannot digest fat at all. This class of patients is becoming decidedly more numerous as our diagnostic ability increases. These babies must be fed on modified skim-milk from which all the fat has been removed, or on fresh butter-milk containing cooked wheat flour and sugar. In other cases fat intolerance can be overcome without reducing the percentage of fat by properly pancreatizing the formula. This is a valuable and too little-employed maneuver. It must not be continued too long or the very purpose for which it was used will be defeated. My own experience with it would place it among the life-saving measures to be depended on especially in extremely asthenic cases of marasmus. It must also not be forgotten that rickets and scurvy may follow the feeding, over a prolonged period of time, of percentages of fat which are too low.

With reference to the digestibility of the protein elements, particularly the paracasein (curd³), authoritative opinion is somewhat at variance. It was formerly taught that this, or rather the indigestibility of the curd of cow's milk, constituted the crux of the whole question of artificial feeding. Many present day authorities deny this, some, notably M. Budin of France, going so far as to feed undiluted cow's milk, with reported good results.⁴

Whichever may be right, the fact remains that curd indigestion is an existent and troublesome condition. Its prevention or correction becomes, therefore, a matter of extreme importance. A healthy new-born infant should not receive more than 0.5 per cent. to 0.75 per cent. of combined proteins. If this is tolerated the amount is slowly increased until at six months from 1.5 per cent. to 2 per cent. is given, and at the age of from ten months to one year 4 per cent. can as a rule be digested. While frequently cases are met in which stronger percentages are digested with ease and benefit at an early age, the rate of progression just detailed does not hold in the case of very weak infants in cases in which distinct curd intolerance exists, notwithstanding the age. When curded, green, slimy stools, associated with colic and irritability, or hard, dry, white movements, which readily crumble, indicate curd indigestion the initial treatment should be a purgative dose of castor oil followed by whey feeding for a few days. Whey contains about 1 per cent. soluble protein and is easily digested. Then small amounts of paracasein are added and the effect noted as these are increased. In exceptional cases it may be necessary to pancreatize the formula for a short time. By this means larger

3. The terms "paracasein" and "curd" are used as synonyms in keeping with the most advanced chemistry of the protein of milk. The coagulable protein is held in suspension by its combination with calcium phosphate and is called calcium casein (formerly caseinogen). This is changed by rennet into calcium paracasein, from which the paracasein is separated as an insoluble curd by small quantities of dilute hydrochloric acid. The earlier term for the curd was casein.

4. Cotton, A. C.: *Diseases of Infancy and Childhood*, p. 129.

amounts of paracasein can be taken, the danger of rickets being thereby minimized. The time of pancreatization is gradually reduced and the pancreatization omitted as soon as possible. After this the addition of some efficient digestive ferment to each bottle or to every other bottle just before feeding is an excellent aid until the digestive function has been completely established.

In many instances the curd is rendered readily digestible by the use of one or two grains of sodium citrate for every ounce of milk and cream in the mixture, as first advocated by Wright and Poynton of England, and later by Van Derslice of Chicago. The early teaching of Jacobi,⁵ advocating the use of cereal decoctions as a curd attenuant, still holds good as an excellent means of rendering the paracasein easily digestible, and has received recent emphasis from the work of Chapin, who employs dextrinized gruels. The cereal decoctions provide a certain amount of starch, which, according to the investigations of Kerley,⁶ can be digested and assimilated by infants as young as nineteen days. Ordinarily, barley-water made from the grain is to be preferred, either full strength or diluted one-half with boiled water. If constipation be present, oatmeal-water used in a similar manner makes an excellent substitute. My own experience with the old-fashioned flour-ball, baked to a bread-brown, grated and added to the amount of a half a dram to each bottle just before feeding has been eminently satisfactory in facilitating protein digestion. Occasionally whey may be employed as a diluent of milk, cream or top-milk, as the case might be, in order to render the curd finer and more susceptible to the digestive juices. In these cases the whey must be heated to 150 F. to destroy the action of the ferment. Beyond this point, 158 F. to 167 F., the lactalbumin will become coagulated.

Sugar is rarely a cause of trouble. The new-born infant should receive from 4 per cent. to 5 per cent. and the amount rapidly increased to 7 per cent. This is continued up to nine months, when it is gradually reduced to 4 per cent. at the age of one year. Frequent, watery, acid stools that excoriate the buttocks, associated with a sour, watery vomitus, flatulency and colic, are indicative of sugar indigestion. Besides marked wasting, a deficiency of sugar produces a subnormal temperature. Infants who are receiving too much sugar and who do not suffer from indigestion are fat, flabby and anemic and are frequent victims of scurvy and rickets. Theoretically, milk-sugar should be employed, but practically plain ordinary cane-sugar answers as well and is cheaper, cleaner and more accessible.

Any formula, however accurate in composition and however scientific in its adjustment to the infant's digestive peculiarities, must always be regarded as an artificial food. As such it must be reinforced by those elements which will cause it to approximate Nature's product in freshness, cleanliness and antiscorbutic and antirachitic qualities. The finished product should therefore be made from certified milk, should be well iced and should never be kept longer than twenty-four hours. Fifteen grains of sodium chlorid should be added to each twenty ounces of formula, and expressed beef-blood, freshly made, or orange-juice in half-dram or dram doses should be given between bottles on an empty stomach.

CONCLUSION

Thus it has been shown that failures with this system of feeding depend on causes foreign to it, and that success can be attained only by studying the needs of the individual and meeting them scientifically. The strongest argument in favor of accurate feeding is that results, both immediate and remote, far excel those obtained by any other method. It is a matter of daily occurrence for the specialist to see infants with a history somewhat as follows:

Born in normal labor. Weight at birth, 7½ pounds to 9 pounds. Age, six months. Present weight 6 pounds and some ounces. Breast-fed for one week. Discontinued the breast because the doctor or the nurse considered the milk insufficient to nourish the baby properly. Placed on indifferently modified cow's milk. Continued to vomit and cry. Colicky, irritable and restless. Stools green and contain curds and mucus, or white and dry. Discontinued milk. Put on barley water, then whey and cream. Vomiting; bowels continued bad. Put on pancreatized milk. Agreed for a while. Started to vomit again. Child fed irregularly with indefinite amounts. Loss of weight continuous. Then ran the gamut of condensed milk, malted milk, and various prepared foods, and four or five able physicians, until this bit of starving, crying, vomiting, purging humanity is thrown into the lap of the pediatricist and his reputation put to the test to work a miracle!

And can he do it? Yes, in the majority of cases with the child free from tuberculosis and syphilis. How does he do it? By studying the needs of his patient and meeting them by carefully adapted cow's milk. The physician can do as well, and by doing less he does not do justice to himself or accomplish his full duty by his patient. He has learned more difficult things than percentage feeding, and the time is not yet when he is ready to acknowledge his inability to do so and leave these cases to the specialist.

CHILDBIRTH AFTER APPARENT MENOPAUSE

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C. H., a well preserved and healthy looking woman, aged 50 years, always menstruated regularly and never had any genital troubles till 15 years ago. At that time she gave birth to twins, making the number of children seven in all. About a year later menstruation returned but with considerable irregularity; and in another year it ceased altogether. Two years ago, 11 years after the cessation of menstruation, she began to feel out of sorts; she lost her appetite, had nausea and felt weak. She was examined and treated by several physicians, including myself, at various times, but her true condition was not diagnosed and she remained unrelieved. One doctor told her that she had a growth and an operation would be necessary to remove it. The others treated her for gastritis, nervous dyspepsia, etc. She began to worry over her troubles and became much emaciated, anemic and nervous.

One day she came into me and said, "Doctor, I have a cancer and I feel it move around here," pointing to her abdomen. But this time ballottement, fetal heart-sounds, milk pressed out from nipples, and other signs pointed to an undoubted pregnancy. She must have been then in the sixth month, for about 3½ months later, I delivered her of a boy of normal size and weight. About a year after this birth, menstruation returned and since appears regularly every month.

Pregnancy eleven years after cessation of menstruation is rather rare. So also is the return of normal menstruation after a cessation of thirteen years. These unusual features seem to justify reporting the case.

5. Jacobi, A.: *Therapeutics of Infancy and Childhood*, p. 29.
6. Kerley, C. G.: *The Treatment of the Diseases of Children*, p. 126.

VEIN-TO-VEIN TRANSFUSION OF BLOOD *

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In a previous paper, dealing with the transfusion of blood in the human species, we presented a summary of the literature on this subject and a description of both the old and modern methods of performing transfusion. At the present time, the method in vogue in the performance of this operation is the direct junction of the vessels either by suture or some mechanical appliance. We intend to discuss only certain features pertaining to the operation and we offer this preliminary report, which is based on the development of a new technic, under three heads: (1) the advantages of the vein-to-vein method of performing transfusion over the arteriovenous method; (2) the indications for employing transfusion; (3) the contraindications to transfusion.

I. ADVANTAGES

The artery-to-vein method has been advocated in the last few years by investigators of the subject, notably by Crile. Anastomosis of the vessels is established either by means of a modification of Payr's original tube, or by direct suture of the vessels. Tubings of various types are also advocated, especially by Brewer.

At the best, the operation is a delicate one and should be performed with a full realization of the risk, both to the recipient and to the donor. To the recipient, the dangers incident to the transfusion are the transmission of disease, hemolysis and acute dilation of the heart. The first of these is readily eliminated by a careful inquiry for a history of syphilis or other transmissible disease, supplemented by a rigid physical examination. With regard to hemolysis, the conditions necessary for its occurrence are as yet imperfectly known, and the clinical tests proposed for their detection have not proved of much practical value. We have not, thus far in our experience, had a case of hemolysis. In the case reported by Pepper and Nesbit, obscure changes were undoubtedly present before transfusion was done.

Acute dilatation of the heart from overengorgement is a grave accident which cannot always be avoided when the arteriovenous method is employed, even by the exercise of all possible care on the part of the surgeon. As will be shown later, however, this accident is practically impossible with the vein-to-vein method of transfusion, because the principal factors in its production, namely, increased pressure and volume of the blood-stream, are eliminated.

The advantages claimed for the employment of the arteriovenous method of transfusion are: (1) that sufficient blood-pressure is obtained to introduce the blood quickly from the donor into the circulation of recipient, and (2) that the blood obtained is richer in oxygen content. On the other hand, the method suffers from various disadvantages.

1. The operation itself is beset with many technical difficulties and should not be attempted by any one who has not perfected his skill by repeated experiments on animals.

2. The size of the vessels can never be determined beforehand. Frequently, the radial artery is found to be so small that some other artery must be exposed for

use. The impression of the size of the peripheral arteries which one gains in the dissecting-room is erroneous, since, in the living subject, they are of considerably narrower lumen than those observed in the cadaver.

3. The pressure and volume of the blood-stream, when the arteriovenous method is employed, are sometimes so great as to cause acute dilatation of the right heart, which is a grave complication, appearing rapidly and frequently proving fatal. It undoubtedly explains some of the sudden deaths that occur during transfusion. In Crile's animal experiments, acute dilatation was often noted, and Cole and Winthrop mention it in their work. We have observed it twice in our human cases, and for this reason, the vein-to-vein method suggested itself to us.

The technical difficulties, encountered in the arteriovenous method, of performing transfusion have led to the development of various instruments, principally modifications of the original Payr's tube. Under the most favorable conditions, even in the hands of an experienced operator attempts at transfusion will often fail, but failure in these cases is due to insuperable obstacles, such as abnormally small, or sclerotic arteries, or deep-seated vessels buried in a thick layer of adipose tissue.

In vein-to-vein transfusion, on the other hand, the surgeon is dealing with the superficial vessels, which are easy of access. Moreover, a gradual flow is obtained so that danger of engorgement and the resulting sudden dilatation of the right heart are avoided. The size of the structures and the ease of access make it a simpler procedure than the arteriovenous method. The principal advantage we suggest for the vein-to-vein method of performing transfusion, is its simplicity. There is no danger to be considered except the possible one of hemolysis.

II. INDICATIONS

The basis for classification of the diseases or acute emergencies necessitating the performance of transfusion has been previously stated at some length. In general, transfusion is employed either to save life or to hasten the patient's recovery. After severe hemorrhage, we have two conditions to fulfil; first, to make up for the loss of fluid in the patient's blood-vessels, and second, to increase the number of oxygen-carriers, (red corpuscles). The first of these conditions can be fulfilled by the injection of saline solution, either subcutaneously or intravenously. The second can be fulfilled only by the transfusion of human blood.

The indications for performing transfusion are therefore as follows: the sudden depletion of the vascular system due to grave accidents, or following operations, as in the case of severe tonsillar hemorrhage, and in hemorrhage occurring during the course of typhoid fever; hemophilia; melena; poisoning with carbon dioxid, coal-tar derivatives and other substances characterized by the production of methemoglobin; and pellagra, in which the transfusion of blood from a patient, who has recovered from the disease, has been found beneficial in a number of reported cases.

III. CONTRAINDICATIONS

It is of no value in severe infections, in the cachexia of cancer and in tuberculosis. In pernicious anemia and in leukemia, transfusion has disappointed the great expectations which the introduction of the method aroused for the cure of these hopeless conditions. Transfusion is decidedly harmful in cases of purpura hemorrhagica, and whenever hemolysis is taking place.

* From the Laboratories of Experimental Surgery in the University of Pennsylvania.

* Read before the College of Physicians of Philadelphia, May 4, 1910

The above claims are based on experiments performed on dogs. The transfusion of blood was obtained by employing veins; as jugular to jugular or better, jugular to femoral, in this way eliminating any possible negative pressure or suction. No difficulty was encountered in successfully transfusing enough blood to resuscitate a dog that was practically exsanguinated. This experiment could be repeated again and again on the same dog by clamping the donor's vessel and bleeding the recipient until practically pulseless; the clamp was then removed and the blood allowed to enter the recipient's circulation until the pulse and respiration returned to normal, while symptoms of hemorrhage developed in the donor. Communication between the veins was established by means of Sweet's modification of Payr's tubes.

In concluding, we wish to express our appreciation of the services rendered by Messrs. Burleigh, Hayward, Pitt and McElhone, undergraduates in the University of Pennsylvania.

NOTE.—After this paper had been put in type, we performed a vein-to-vein transfusion on a woman for a very severe hemorrhage following a ruptured extrauterine pregnancy. The pulse before was very weak and rapid, about 160 per minute. Five minutes after the medial cephalic of the husband was connected to the median cephalic of the wife, the pulse was much fuller and 140 per minute. After the blood had flowed thirty minutes the pulse was good, full and 120 per minute. No abnormal heart sounds could be heard.

THE CAMPAIGN AGAINST DIPHTHERIA AND SCARLET FEVER IN CHICAGO *

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These two diseases are constantly endemic in Chicago, each day bringing its quota of reports to the health department. In diphtheria and scarlet fever, perhaps to greater extent than in any of the other more serious endemic diseases which are prone to become epidemic, large cities, as a rule, demand an adequately manned contagious disease bureau and expect great vigilance and diligence of those in charge in their efforts at preventing epidemics.

Chicago until recently was woefully deficient in her safeguards against epidemics of these two diseases. In spite of repeated warnings she chose to ignore the recommendations for adequate protection and was content with the following conditions as regards diphtheria and scarlet fever.

For several years prior to 1907 the function of the health department in these two diseases had been little more than advisory to the attending physician, who practically had delegated to him the protection of the public against the spread of contagion. The physician made the diagnosis, gave the family such instructions as he chose regarding quarantine, reported the case if he chose to comply with the city ordinance, and, if he reported it, used his own pleasure about having the premises placarded, and the time of ending the case.

Because the activities and energies of the few medical inspectors were needed in fighting smallpox or in other equally urgent duties, such as antitoxin administration and intubation, the contagious disease bureau was forced to admit its inability to compel the reporting of diphtheria and scarlet fever cases, and therefore extended to the attending physician, as the price of reporting the case and cooperating with the department, the privilege

of "assuming responsibility" for the prevention of the spread of contagion. By simply writing the magic word "assume" in a certain space on the reporting postal card the physician enabled his patient to escape practically all surveillance of the bureau of contagious diseases, and no warning placard was posted.

This plan of allowing the attending physician to "assume responsibility" may have resulted in an increased number of cases being reported at its inception, but in 1904, when I first became intimately acquainted with its results, I was speedily convinced that it was unpractical and not justified by existing conditions, when all other large cities of the United States, and even the majority of progressive villages in the vicinity of Chicago, were requiring the reporting of cases by physicians and the posting of warning placards.

Under this plan of "assuming responsibility" many physicians took the stand that, inasmuch as the management of diphtheria and scarlet fever cases was left to them anyway, and their course of action was the same, whether the case was reported and responsibility assumed, or the case was not reported at all, there was no reason that they should bother with reporting the case. Other physicians took the position that it was absurd for a health department to think that a physician who sees a case of contagious disease for fifteen or twenty minutes once or twice daily at the onset, and perhaps once a week during the convalescent stage, could guarantee that his instructions as to quarantine would be carried out. The physicians of this group would not put their signature to something they could not guarantee and still were not willing to placard the premises of their patients unless it was a general requirement. Another smaller group of our physicians reported their contagious cases and had premises placarded because they felt it a duty they owed the community in which they practiced that they should have knowledge of the location of all diphtheria and scarlet fever in their midst.

Under this system the laity soon came to feel that placarding was a reflection on their good citizenship, as indicating they could not be trusted to do the right thing without a warning sign on their door, while their next-door neighbor, perhaps much more reckless of life and the rights of others, had no warning sign. This feeling led them to beg their physicians not to have a placard posted, and, ultimately, to seek out that physician in the neighborhood who never had warning signs placed on the premises of his contagious cases. This sentiment among the laity helped the majority of physicians who never reported their cases, and also that large group of physicians who "assumed responsibility," whereas the small group of physicians who were doing the right thing as measured by standards set by all progressive municipal health boards found their practice curtailed with resulting financial loss. The plan of "assuming responsibility" was, in my opinion, the greatest millstone to progress that could be tied about the neck of any municipal contagious disease bureau.

By Jan. 1, 1907, the situation as regards scarlet fever was alarming and as regards diphtheria threatening. During the preceding year just closed diphtheria reports had almost doubled and more than four times as many cases of scarlet fever had been reported by about the same group of physicians who had done the reporting in previous years. This probably meant a marked increase in the number of these two diseases and that less than one-half the cases were reported, and yet delegations to

* Read in the Section of Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

the bureau of contagious diseases were frequent and insistent that something be done to protect their communities where localized epidemics existed. Many of the medical profession were in a measure hostile, as they had come to feel it their prerogative to have charge of quarantine and other restrictive measures. The laity, too, resisted placarding of their premises.

The bureau of contagious diseases, forced to a "do-nothing policy" for want of men, was already greatly overworked. Records were in a chaotic condition. The office force was absolutely inadequate to handle a normal situation. Unavailing had been all efforts to convince those in authority that, in many respects, a contagious disease bureau is an emergency service just as truly as is the fire department, and that to cope with contagious diseases it is just as important that a large city have a specially trained and adequate contagious disease bureau force, if lives are to be saved and financial loss averted, as it is that she maintain a well-equipped and well-manned fire department for protection of lives and property.

Early in January, 1907, the threatening epidemic of scarlet fever broke forth and on January 29 reached its height as regards the highest number of cases reported in one day, with 413 reports. Our common council finally took the situation in their own hands and speedily provided for 350 men, nearly all physicians, 100 more than the number asked for by the contagious bureau, with whom to combat the epidemic. This was largely a milk epidemic.

It was February 1 by the time these raw recruits were instructed and competent to do work that would bring results. The cases decreased almost one-half in February over January. March saw a decrease of about one-half as compared with February. By April the situation was well in hand.

During the excitement incidental to the epidemic a level-headed councilman, stimulated doubtless by some progressive physician who realized the evils and handicap of "assuming responsibility," had passed an ordinance making it compulsory and mandatory on the health department to placard all cases of scarlet fever and diphtheria. With the lessons of an epidemic fresh in memory, and with the aroused public sentiment and a united press demanding safeguards against future epidemics, the prospects for better regulations as regards scarlet fever and diphtheria were bright indeed.

THE PROBLEMS FOR SOLUTION

Some of the problems left for solution by the 1907 epidemic were the following:

PROBLEM 1.—How to keep alive the aroused public sentiment to the point where press and public would demand a properly organized and manned contagious disease bureau that should pursue as progressive, as wide-awake and as aggressive an attitude towards scarlet fever and diphtheria as it did towards smallpox. This first problem was, fortunately, completely solved when in April, 1907, Chicago was given a progressive, fearless, energetic and thoroughly competent Commissioner of Health, respected by the medical profession of Chicago, her press and public generally. The press and public, guided largely by Dr. W. A. Evans, the Commissioner of Health, has certainly demanded a live, vigorous policy of the Contagious Disease Bureau ever since.

PROBLEM 2.—What immediate safeguards were needed for prevention of future epidemics? The following had been advocated for years by Dr. Spalding, the chief of Bureau of Contagious Diseases, and seemed desirable:

- A. Increased number of medical inspectors.
- B. A systematic, unified field inspection service.

C. Reorganized methods of keeping contagious disease records.

D. School inspection for contagious diseases.

E. An increased office force, work better systematized, and a full day's work demanded.

F. More accurate office data as to location of cases.

A. *Increased Number of Inspectors.*—One hundred medical inspectors were asked for and secured within one month, and they have ever since been a permanent part of our force.

B. *A Systematic Field Inspection Service.*—This was obtained by dividing Chicago's 190 square miles into 100 districts and assigning a medical inspector to each district. He is made responsible for the contagion and other conditions in his district. A definite territory to each inspector makes much less duplication of work. This field work is fourfold: (1) inspection; (2) investigation; (3) vaccinations, and (4) diagnosis.

1. By inspection we mean the proper handling of a case of contagious disease regularly reported by the attending physician. An inspection implies:

- (a) If diphtheria, a diagnostic culture, also antitoxin for patient and contacts.
- (b) Placarding premises in front and rear.
- (c) Establishing a strict quarantine.
- (d) Definite oral and printed instructions to family as to quarantine requirements.
- (e) If good quarantine is impossible, leaving a note for ambulance driver and order to hospital.
- (f) If diphtheria, and case is to go to hospital, culture contacts.
- (g) Leaving card of instructions for quarantine officer back of front door placard, giving him definite, concise information as to the quarantine requirements laid down by the medical inspector.
- (h) Notification to principals of schools attended by children in building of case of contagious disease and also to principals as to who, if any, from building infected, may safely attend school.
- (i) A complete written report to the department of each case inspected, embodying a statement of above and other facts, such as name of milkman, source of infection, school and room attended, etc.

In 1909, 49,952 inspections were made by medical inspectors. During the first five months in 1910, there were 27,693 inspections.

2. Vaccinations, in case of smallpox exposures and contacts, includes following up cases to see if vaccinations are successful and a watch for symptoms of smallpox. If symptoms develop, then prompt removal to Isolation Hospital.

3. Investigations are made of suspected cases learned of from all sources other than through the attending physician. Inspector is required to examine case carefully and if contagious, report to the department, quarantine, placard, etc.

In 1909, there were 23,141 investigations by medical inspectors. In 1910 to June 1, there were 2,216 investigations by medical inspectors.

C. *Reorganized Methods of Keeping Contagious Disease Records and Files.*—Instead of using the card-index method with a separate file of each item relating to a case, which required us to look in five or six different places before we could get complete data on the case, it was decided to use the envelope-filing method. This enables us to keep all data relating to case where we can refer to it quickly in its entirety. This change was of great value to both office force and public as to economy of time and convenience.

D. *School Inspection for Contagious Diseases.*—This is probably the most valuable single factor that Chicago has in the prevention of spread of contagion through the pupils of her 400 schools. This plan calls for a daily systematic inspection as follows: (1) A superficial routine examination of all pupils at opening of schools in fall; (2) all pupils who have been absent for more than three days before entering the class-room; and (3) any child referred to inspector by principal or teacher as suspicious.

How valuable this is in preventing diphtheria and scarlet fever is self-evident when it is explained that out of 537,590 pupils examined in 1907, 633 cases of diphtheria and contacts,

many of whom were undoubtedly "carriers," were halted at the threshold of our schools. In scarlet fever the figures are even more convincing; 1,456 cases of scarlet fever and contacts were excluded from our schools.

A summary since 1907 follows:

SCHOOL MEDICAL INSPECTION FOR CONTAGIOUS DISEASES					
Examined.		Diphtheria.	Excluded.		
			Con- tacts.	Scarlet Fever.	Contacts.
1908	499,046	178	180	278	254
1909	647,842	47	292	189	581
1910, to June 1....	262,645	14	136	92	233

E. *Increased Office Force.*—The office force was more than doubled, the work was carefully systematized and a full day's work demanded.

F. *More Accurate Office Data.*—Daily spot maps, made by months, were installed so that those in charge of contagious diseases might see at a glance the location and grouping of the cases of diphtheria and scarlet fever.

PROBLEM 3.—What measures were needed as additional safeguards against future epidemics? The following, among others, seemed very desirable and plans were laid to secure and put them into operation at no very distant date:

A. *Placarding and Instituting all Quarantine Measures More Promptly.*—To accomplish this, we go for our mail before 7 a. m., and have three clerks come one hour earlier than formerly. We sort, assign and telephone all assignments to the medical inspectors before 8:30 a. m., which is before they go out on their morning's duties. By this plan we often quarantine a case twenty-four hours earlier than formerly. We go for our mail Sundays and holidays and at once telephone out to the inspectors all diphtheria and scarlet fever cases for immediate action. This frequently means a saving of forty hours in instituting quarantine.

B. *More Strict Quarantine in Diphtheria and Scarlet Fever.*—To meet this requirement it was decided to separate the workers of the family from the patient and his attendants more completely. The plan adopted was that all adults of family who work out must live in a portion of the flat completely cut off from the patient and attendant, or if in a large house, live in a portion remote from patient and not come in contact with anyone who comes in contact with patient, or if these conditions were impossible of fulfilment, then the workers would have to room and board elsewhere or quit work and stay at home, unless they should elect to end the entire quarantine by sending the patient to hospital.

This plan works a hardship to a certain extent, but not as great as one would suppose. Very frequently the living-rooms are so arranged that by sealing one door the patient and attendant can be completely isolated from front part of flat and placards placed only on back door, so that the workers may sleep in front, but must take meals and find toilet facilities outside of premises. Our rule requires that the patient and attendant be given that portion of the house containing bath or at least toilet facilities.

To control the quarantine more effectually, a plan of espionage was devised. The disinfecter is to call every other day and watch for violations of quarantine. On his first visit he removes from behind the front-door placard a card which the medical inspector for him, giving concise instructions as to what quarantine shall be demanded. On his second visit he notes the date and quarantine conditions for the case, and, if he has a subsequent visit as well as mailing the department a report at each visit.

The quarantine officer is supplied with special forms filled out carefully and completely in case of any violation of quarantine, and this data is used by the health department or in other prosecutions. If his quarantine report is not satisfactory, the health department is forced to take action. If the case is one of diphtheria with a positive report of diphtheria, we immediately send the patient to the hospital. If the case is one of scarlet fever, we also do this. The room at Cook County Contagious Hospital where the patient is reported to be extended to the privilege of the public health department. We have been censured for maintaining first Annual quarantine requirements, but, personally, I prefer

for some slight financial hardship to one family for the sake of adequate protection of many families rather than the reverse, which was formerly often true, namely, that mothers would call, dressed in mourning, and blame us because their children had contracted diphtheria or scarlet fever and died through the carelessness of some person, made possible through failure of the department to provide the needed protection.

C. *A Corps of Medical School Nurses.*—Nurses are an indispensable adjunct to any efficient school medical inspection service, and the forty nurses whom we have, have added fully 50 per cent to the value of our school inspection service. These nurses were obtained and put to work Oct. 12, 1908.

D. *Scientific Handling of Diphtheria.*—Dealing as we were with a disease of definite etiology, with a specific therapeutic agent, if used early, and also amenable to transitory prophylactic immunity, our Commissioner of Health early decided that we ought to use accurate laboratory information as our basis for terminating diphtheria quarantine, instead of guesswork. Inasmuch as contacts are at times "carriers" and the cause of epidemics, it was necessary that our bureau should take cognizance of them. It was finally determined to require two negative cultures on consecutive days from patient and one from each contacts before raising the quarantine through disinfection.

It was also decided that we should get contacts immunized by acting through the attending physician if possible, but if he was indifferent, then through the medical inspector. These two measures have now long been in operation. Only since January 1 have we gone a step further and insisted on a diagnostic culture supplementing the clinical diagnosis. In all cases of diphtheria in which the attending physician has not taken a culture, the medical inspector is instructed to do so. If the first diagnostic culture is negative, he takes a second one, as statistics show that from 12 to 18 per cent of throats, when a negative result is obtained at the first attempt, will give a positive result when a second culture is taken. With two negative cultures from the throat and a written statement from our medical inspector that in his opinion the case clinically was not diphtheria, we send the attending physician the following communication:

Two cultures have been examined with negative results in the case of diphtheria reported from St., in person of On the enclosed card, please advise us of your wishes as to the disposal of case. Should quarantine be continued or terminated now? It terminated now, is disinfection desired?

The physician replies on a card of the following form:

Concerning case reported as diphtheria in the person of....., living at....., I hereby advise that

Quarantine be { Terminated. } Performed.
 { Continued. } And that disinfection be { Omitted.

Name....., M.D.,
....., who never had premises of his contagious cases. This sentiment among the laity helped the majority of physicians who never reported their cases, and also that large group of physicians who "assumed responsibility," whereas the small group of physicians who were doing the right thing as measured by standards set by all progressive municipal health boards found their practice curtailed with resulting financial loss. The plan of "assuming responsibility" was, in my opinion, the greatest millstone to progress that could be tied about the neck of any municipal contagious disease bureau.

By Jan. 1, 1907, the situation as regards scarlet fever was alarming and as regards diphtheria threatening. During the preceding year just closed diphtheria reports had almost doubled and more than four times as many cases of scarlet fever had been reported by about the same group of physicians who had done the reporting in previous years. This probably meant a marked increase in the number of these two diseases and that less than one-half the cases were reported, and yet delegations to

with an incubator. As a rule, it would not be in the police station incubator long before the time would arrive to send a messenger to the office of the chief of police and incidentally he brought along these cultures to the health department. It was also arranged to open the municipal laboratory earlier each morning and continue it later each day, with better service also Sundays and holidays. These improved conditions together with numerous free antitoxin stations, distributed over the city, made it easy for physicians to apply laboratory methods in diagnosing diphtheria and gave them no excuse for failure to use antitoxin.

G. Means of Making Our Health Ordinance More Effective.—This problem was solved by having passed by the city council certain rules and regulations to supplement the existing health ordinances, which, when passed, would have the weight of ordinances. These "rules and regulations" were passed Jan. 27, 1908, and have been of enormous value to us in enforcing health measures. Of these ninety "rules and regulations" at least twenty-eight apply directly to diphtheria and scarlet fever, and nineteen others indirectly touched on these two diseases.

H. Compulsory Reporting of Sales of Antitoxin by Druggists.—Recently we secured a law, long wanted, which compelled a druggist to report the sale of antitoxin. This reads in substance as follows:

An ordinance passed by the city council Nov. 1, 1909, requires all persons, firms and corporations to report to the Commissioner of Health within twenty-four hours any sale or gift of diphtheria antitoxin within the city of Chicago, giving the name and address of seller, buyer and patient; also the date and hour of sale and number of bottles sold, with number of units in each.

I. Means of Getting Diphtheria and Scarlet Fever Cases Reported.—From the time "assuming responsibility" was abolished, this problem was recognized as of great importance and plans were made to solve it. We were all agreed that physicians were not reporting their diphtheria and scarlet fever cases as generally as they should. Gradually, however, the physicians have taken to reporting their contagious cases, until to-day this problem is less complex and of less moment than formerly. A large majority of our physicians are pleased with the present methods of the department in the management of these two diseases. The very small minority who do not willingly report their cases of diphtheria and scarlet fever, do, nevertheless, report them because they realize that if they are detected concealing or "not reporting" a case of diphtheria or scarlet fever they are put to the inconvenience and expense of defending themselves in court for violating an ordinance, with danger also of having to pay a \$10 to \$200 fine. If a suit is started where there has been flagrant, almost criminal, negligence on the part of the physician it is given publicity in the newspapers. Also, if a conviction is secured, additional publicity is given.

As a rule it works this way: Suit is started, if a flagrant case, and the physician notified. He comes in alone, or with his attorney, to try to get the suit withdrawn. This is refused, but, on his promise to be good in the future, he is let off with costs and no notoriety in the public press. Less flagrant violations result in a letter to the physician asking him to call at the department and state his case, provided he thinks there are any extenuating circumstances which might cause the department to refrain from pressing the contemplated suit against him. Even this makes him trouble and elicits a promise to be good in the future. In still less flagrant violations, the department sends a form letter calling on the attending physician to make a statement in writing as to his relations with a case of diphtheria or scarlet fever said to have been "not reported" to the department.

This small percentage of physicians know that the Health Department is in earnest about demanding that they report their cases of diphtheria and scarlet fever. They fully realize that we have the public, press, charity and other organizations demanding reporting of these cases; also, 300 school principals, a small army of school and Sunday school teachers, a host of school pupils and the police department, in addition to the regular machinery of the department, chiefly the school nurses

and medical inspectors, all on the lookout for and ready to report hidden cases or suspected hidden cases to the Health Department.

This changed attitude of our people in three years is astounding and it is remarkable how often we hear from some one of these sources of the existence of a case of contagion before the attending physician's report gets to the department. Many physicians, slow in reporting cases in spite of the law requiring a report within twenty-four hours, are improving in this respect for the very reason that they fear that we will get the report from outside sources first, which will put them in the attitude of trying to conceal the case.

Another factor that makes for reporting of cases by the attending physician since school inspection was established, is the difficulty in concealing a case if there are school children in the family, as these children often tell of sickness at home and this leads to an investigation of the nature of the sickness by the school inspector.

If the patient is a school child, detection is still more certain when the medical inspector looks up absentees reported by school teacher as sick at home with sore throat or rash. Even if the case is not investigated, and after recovery the child tries to reenter school, the medical inspector then reviews the nature of the illness and if there are suspicious circumstances about the case, he sends the child home and goes to the home and makes a thorough investigation.

If facts warrant it, the child is told to bring a written statement from the medical attendant that illness was not of a contagious nature. More than once we have confronted a physician with his written statement that there was no contagious disease present, when he had used antitoxin, and the culture from a reddened throat showed the presence of the Klebs-Loeffler bacilli. A grilling for a physician under these circumstances, together with inconvenience caused him and his patient, makes him a convert ever afterwards to that group who report their contagious cases. Many physicians formerly crawled behind the excuse that it was only a suspicious case, that no positive diagnosis was made and, therefore, not reported. To prevent the obvious abuse of this plea, Rule 4 was added to our rules; this reads: "It shall be the duty of the physician who suspects one of the above named diseases, to report it as a suspicious case. Such cases will not be placarded or removed unless a warranting diagnosis is established. A corrected report of the case shall be made by the attending physician as soon as the diagnosis is made."

Another factor in inducing the physician to report is that the department learns of the name and address of the patient and the attending physician in every case in which the state of Illinois furnishes free antitoxin within the city limits of Chicago; also the law that if the physician or family buys antitoxin, the druggist is compelled under penalty to report at once to the Health Department such sale, giving names and addresses of patient and the attending physician.

All reports from state and druggists are looked up in our files and if the case is not regularly reported by the attending physician, an investigation by the medical inspector is made. Our index envelope records of physicians who do not report or cooperate fully with the department is often of value. If a physician gets into trouble with the department over not reporting a case, he invariably makes the plea that it is his first offence, and that, heretofore, he has always cooperated with the department to the fullest extent. Often we can meet this plea with documentary evidence of from two to ten instances in which he has not complied with the law as regards the minor contagious diseases. We estimate that we are now getting reported about 95 per cent. of all cases of diphtheria and about 93 per cent. of all scarlet fever attended by physicians.

METHOD FOR HANDLING LOCAL EPIDEMICS

DIPHTHERIA

The following is a good illustration of procedure in diphtheria:

A public school known as the McCosh Branch, consisting of four large school-rooms and one small class-room, had been remarkably free of all contagion from the time

school opened, early in September, 1909, and in this district no case of diphtheria had occurred in any family whose children attended this school.

On Nov. 1, 1909, three cases of diphtheria suddenly appeared in this district. On November 2 two more were reported and on November 3 three more cases. November 4, 5 and 6 each brought three cases reported among pupils of this branch. The evening of November 3 I communicated with Dr. G. M. Cushing, our medical inspector for that district, and instructed him to watch this situation, even if he had to neglect other schools. He stated that two factors were common in these cases. The patients all had the same milk-supply and all attended the McCosh Branch school. On November 4 a double investigation of the milk-supply by the medical inspector and food bureau excluded that as a cause. Dr. Cushing then took cultures from the throats of all the children in the school. November 4, 112 cultures from pupils of the three large rooms were sent to the municipal laboratory and on November 6 seventy-nine were sent in from the remaining pupils of this school.

The laboratory on November 5 reported that eight of the 112 cultures showed presence of Klebs-Loeffler bacilli. On November 6 the laboratory reported one positive result among the second lot of seventy-nine cultures submitted. All nine of the pupils with positive culture results were excluded from school, together with other children in these families. The entire school building was thoroughly disinfected. The school was not closed, although two or three delegations of excited parents demanded it. It is the policy of the bureau not to close schools; we believe in getting the pupils with contagious diseases out of school and then keeping the well children in school, where we can observe them daily.

Among the 112 which were examined and from which cultures were taken was one throat so suspicious that this child was sent home at once. The medical inspector followed soon after and found the following conditions, if my memory serves me right:

One child was dead with malignant diphtheria and two others gave unmistakable evidence of beginning diphtheria. The dead child had been attended for a week by a physician who had failed to recognize the nature of the malady, had given no antitoxin, and had permitted four children of the family to attend school. Another physician, called in as the child was dying, recognized the probable nature of the disease, used antitoxin, and no more deaths resulted.

Out of seventy-nine throats which were examined and from which cultures were taken on the second day was one so suspicious that the medical inspector took the child in his automobile to its home, with the intention of advising the parents to call their physician. On arriving he found an older brother, recently employed as a delivery boy for a near-by grocery, who had been sick for a week complaining of his throat. Examination showed a well-marked case of diphtheria. A sister, thoroughly exposed, was visiting in a near-by suburb, and when the medical inspector went to the address given he found her with a slight sore throat and brought her home.

A physician was called, positive cultures obtained, and all received antitoxin. Three of the four patients recovered, but the older brother developed a typical diphtheric paralysis and died on November 21.

Investigation in the homes of the other pupils whose culture gave a positive result revealed diphtheria clinically in one of these pupils, and when cultures were taken

from the throats of the members of the family a positive result was obtained from the mother, with a history of a probable mild diphtheria recently. The family physician reported and quarantined this family on November 6.

A second family called in a physician and the case was reported and quarantined. The remaining five, when visited, gave no evidence of diphtheria and members of the family, when cultures were taken, gave no positive result. Each child with positive cultures but no symptoms was immunized and placed under quarantine until two negative cultures were obtained, when he was readmitted to school.

Absentees from school were visited and cultures were taken, but no cases were found. After excluding the above cases on strength of laboratory findings not another case developed from these foci of infection in that school or in the district after November 9, and that little epidemic was at an end as soon as these cases terminated. This case is selected because of the small size of the school and the fact that it illustrates the various remedies used in combating diphtheria epidemics.

I know of no better illustration of the great value of laboratory methods. The laboratory told us accurately and quickly that the nine pupils in that school were a menace to 190 others. This elicited my admiration almost as much as did a demonstration a few years ago by Dr. H. Spalding, who, by inspecting the vaccinal status, was able to say which six of 250 people, thoroughly exposed for several days to smallpox in an institution, would contract smallpox; the six he picked out, and no others, did develop this disease.

SCARLET FEVER

The following, in a small way, shows the method of combating scarlet fever:

A neighbor complained to me that a child was attending a public school from a home where he believed there was scarlet fever. Our spot map showed a great many cases in this immediate neighborhood. The medical inspector of the district was asked to investigate the complaint, and found a child with scarlet fever in this home and no medical attendant. A child of the family in the "peeling" stage was found, not in the public school, as reported, but in a parochial school. A careful inquiry elicited the following: This child was sick at home for a week and then returned to school with a statement that he had been ill with a cold. The sister in charge, instead of having him examined by the school medical inspector, permitted him to enter the class-room without such precaution. The history was so typical of scarlet fever that no inspector could possibly have overlooked the diagnosis. Thirty-nine cases of scarlet fever occurred among the pupils of that school, due to failure of this school, in this instance at least, to live up to the requirements.

A plan of control given a trial in connection with the cases quarantined during this little epidemic worked so admirably that it was later attempted on a much larger scale. The plan was this: A disinfecter was detailed to call daily on the thirty-nine patients under quarantine and make them all take precautions against spread of contagion. Incidentally he disinfected premises whenever one of these cases terminated. The following extract of a letter written by me Feb. 18, 1909, to the medical inspector of this district shows the success in limiting the contagion to the original cases infected:

On January 30 we put a disinfecter in your district to watch the thirty-nine cases of scarlet fever and to maintain a strict

quarantine. Since then no new cases have developed and all but twelve of the old cases have terminated. It is necessary to remove the disinfectant to some other district. Please visit each of these remaining cases daily until terminated. See if you cannot prevent a new case occurring from any of these.

The following is another illustration of what can be done in efforts at prevention. A number of small children were exposed to scarlet fever in a nursery. These children were all in their homes before exposure was known to the health department. The name and address of each was secured, the family advised of the exposure, and each was kept under close observation by the medical inspector of this district during the period of incubation. In this way any cases developing were promptly recognized and placed under early quarantine.

The figures given in the accompanying tables seem to indicate a marked increase in the number of cases of diphtheria and scarlet fever in Chicago in the last two years.

TABLE 1.—CASES OF SCARLET FEVER REPORTED TO THE CHICAGO DEPARTMENT OF HEALTH FROM JANUARY, 1904 TO MAY, 1910

	1904.	1905.	1906.	1907.	1908.	1909.	1910.
January	215	109	458	3058	473	881	688
February	197	103	383	1741	438	590	671
March	189	94	478	894	416	644	692
April	167	85	527	562	354	587	600
May	166	71	518	421	301	455	...
June	91	72	489	315	287	382	...
July	41	57	284	276	203	261	...
August	42	52	213	242	173	216	...
September	45	41	270	270	207	342	...
October	84	79	369	291	608	514	...
November	129	145	519	341	841	684	...
December	110	198	586	445	914	686	...
Total	1416	1106	5089	8856	5305	6242	2651
Deaths	143	79	493	715	398	360	131
Per cent.....	.101	.071	.097	.081	.075	.058	.049

TABLE 2.—CASES OF DIPHTHERIA REPORTED TO THE CHICAGO DEPARTMENT OF HEALTH FROM JANUARY, 1904 TO MAY, 1910

	1904.	1905.	1906.	1907.	1908.	1909.	1910.
January	313	262	475	923	417	745	468
February	245	217	339	690	401	522	443
March	172	189	348	491	379	522	470
April	143	193	273	355	233	483	527
May	123	140	301	293	254	378	...
June	132	144	272	259	306	320	...
July	127	152	229	186	255	268	...
August	130	110	181	212	251	223	...
September	150	249	286	337	341	327	...
October	290	438	530	521	788	550	...
November	376	461	613	563	880	719	...
December	384	346	610	508	934	601	...
Total	2607	2901	4457	5338	5439	5658	1908
Deaths	395	426	574	536	564	675	253
Per cent.....	.151	.147	.129	.100	.104	.119	.132

We believe, however, that there have been no more cases in Chicago for the past two years than in 1904 and 1905. We are convinced that the cases are reported much better than formerly and that this accounts for the large apparent increase in the prevalence of these two diseases. Our reasons for this conviction are as follows:

1. Instead of a small group of physicians formerly on our records as reporting contagious diseases we now have hundreds of names of physicians not formerly in evidence there.

2. Figures show that the increase has been less in diphtheria than in scarlet fever, and this was anticipated, as diphtheria was always better reported than scarlet fever, because physicians could not well avoid reporting those cases in which they obtained free antitoxin and free examination of positive cultures at the municipal laboratory.

3. The increase in both diphtheria and scarlet fever reports has been about what we expected, as our machinery for compelling reporting has gradually improved.

4. We do not get one-tenth of the complaints we did in 1904 and 1905, accusing physicians of concealing cases.

It has always seemed to me that a comparison of death-rates for different years on diphtheria and scarlet fever is subject to great error. The virulence of the particular strain of micro-organism causing the disease often varies so greatly from year to year that there are bound to be marked fluctuations in the death-rate, just as in smallpox.

The physician who conceals the diphtheria or scarlet fever patient until dead will rarely certify the correct cause of death, and in my opinion many of these patients were formerly buried as dying of non-contagious diseases.

We do not get as high a percentage of cases of scarlet fever reported as in diphtheria and we are still greatly handicapped by not having a municipal hospital for scarlet fever. How badly we need this hospital is shown by the fact that in the past five months we have had 280 patients with scarlet fever in Chicago who were willing to go to the hospital, or else quarantine conditions were such that the patients should have been forced to the hospital.

Our requirement for period of quarantine in scarlet fever was formerly six weeks. We now send our disinfectant in one month, if the attending physician requests it. Occasionally we send him even a few days earlier than this, if the doctor furnishes us a written statement that he has inspected the patient carefully and is positive that desquamation is complete and no complications present. Our Rule 24, which says, "Physicians representing cases ready for house disinfection when they plainly are not ready will be prosecuted," prevents abuse of written special requests for early termination of scarlet fever quarantine by disinfection.

To our surprise, we find the percentage of cases as "peeling" no higher than when we held to a six-weeks period before sending to disinfect.

CONCLUSIONS

1. Chicago has made enormous strides in management and control of diphtheria and scarlet fever since 1907.

2. Safeguards against extensive epidemics of these two diseases are as complete and effectual as can be obtained at the present low per capita cost.

3. The department receives reports of almost all cases of diphtheria and scarlet fever seen by physicians.

4. School inspection, strict quarantine and hospitalization are the three most valuable assets as municipal safeguards against epidemics of these two diseases.

5. A campaign against diphtheria and scarlet fever to give results must be a daily, continuous and ceaseless battle.

100 State Street.

Sleeping-Sickness.—Professor Ronald Ross and D. Thomson have studied a case of sleeping-sickness in the former's Liverpool clinic for a period of seventy-three continuous days by precise enumerative methods and reported to the Royal Society, June 16 (*Nature*, June 23), the discovery of a regular periodic increase and decrease of the parasites in the blood. A variation from time to time had been previously observed, but the regular periodicity of their increase in every seven or eight days, observed by Ross and Thomson, seems to have been overlooked by other observers, probably owing to insufficient methods of counting.

WHAT CAN HEALTH DEPARTMENTS DO TO
CONTROL SCARLET FEVER? *C. HAMPSON JONES, M.D.
BALTIMORE

My attention was first attracted to the question by observing the marked contrast in the tracings of the cases and deaths due to scarlet fever and diphtheria in Baltimore. The record of cases reported of such diseases was available for only a few years, commencing with the year 1891 and ending with the year 1909, making a period of nineteen years.

Previous to 1891, the death-record alone gives us any information, and this has been reproduced in the tracings for the two diseases as far back as 1875, when our burial law requiring death certificates to be filed at the health department went into effect.

DIPHTHERIA

If, now, we consider the tracing for diphtheria (including croup) we find the number of deaths in 1875 was 238, which increased almost steadily to 929 in 1882. Then the number decreased year by year until the low number 206 was reached in 1889. Again the death-line rises year by year until 428 deaths are recorded in 1892, which was almost equaled in 1898 with 412 deaths, since which time the death line has decreased steadily until 1908, when only 64 deaths occurred. This decrease in the number of deaths of course was directly due to the free distribution of diphtheria antitoxin, which was commenced in 1895, but the use of this curative agent did not become general until 1898 and 1899.

The "case" line for diphtheria commences in 1891, when 1,031 cases were reported; it then fell, out of proportion to the number of deaths, to 346 cases in 1893; then it began to rise and in 1897 raised to 1,620 cases, which was 967 cases more than the year before, and continued to rise until 2,077 cases were recorded in 1898, since which time the number has decreased each year, with three exceptions (when there were 1,858, 1,461 and 1,172 cases respectively) until the low mark of 756 cases was reached last year.

The increase of recorded cases beginning in 1895 and ending in 1898, was undoubtedly due to three causes:

1. The return of the natural increase.
2. The opening of the Health Department Laboratory.
3. The distribution of free antitoxin.

The first cause probably has as a prime factor the increase of non-immunes.

The second cause was the use of the laboratory to assist in diagnosis, thereby acquainting the department with many cases that might not have been reported otherwise.

The third cause induced the people to submit more rapidly to the placarding of their houses in order to obtain speedy relief, thereby again increasing the number of reported cases.

The decrease of recorded cases since 1898, when there were 2,077 cases, down to 756 in 1909, was due to the following factors:

1. Free antitoxin.
2. Throat inspections by cultures taken by the health department before fumigation.
3. House placarding (commenced in 1898).
4. Fumigation.
5. Semiweekly notification of school teachers of cases, with

instructions to keep other children of the same house away from school.

6. Permits to return to school issued by the department only.

The number of reported cases, while showing a steady decline, yet remains higher than the number previous to 1898, due, we believe, to the fact that the use of the laboratory and the free antitoxin insures now the reporting of all cases of diphtheria, which did not formerly occur. Indeed, we have good reason for believing that many cases reported as diphtheria are not that disease.

SCARLET FEVER

Scarlet fever tracings are considered for the same number of years as the diphtheria tracings, and under the same conditions; i. e., the death line, commencing in 1875, and the case line in 1891.

Owing to the discovery of certain clerical errors in records previous to 1891, one should not place absolute confidence in the correctness of this scarlet fever "death" line, but there undoubtedly was, from 1875 to 1909 inclusive, a corresponding reduction (but probably not to the same degree) in the death-rate due to scarlet fever per 1,000 inhabitants in Baltimore, as occurred elsewhere. This reduction is shown in Table 1, originally published in a paper by Dr. Sidney Davies, which gives the record of the scarlet fever death-rate in London:

TABLE 1.—SCARLET FEVER DEATH-RATE IN LONDON PER
1,000 POPULATION

Year.	Death-Rate.	Year.	Death-Rate.
1861-1870.....	1.13	1895-1900.....	0.14
1871-1880.....	0.60	1901-1905.....	0.11
1881-1890.....	0.33	1906.....	0.11
1891-1895.....	0.24		

The probability that such a reduction in the death-rate per thousand of population is indicated by the small number of deaths in Baltimore due to scarlet fever from 1885 to 1909, inclusive, during which time the number of deaths varied from 85 to 11, except in the years 1891, 1892 and 1904, when there were 138, 258 and 143 deaths respectively.

The case-rate per thousand population, however, does not show so satisfactorily and we do not find any indication of a control of the number of cases such as is shown in the diphtheria record.

Commencing with 1891, the number of cases of scarlet fever reported each year was as shown in Table 2:

TABLE 2.—NUMBER OF CASES OF SCARLET FEVER IN
BALTIMORE

1891.....	1,512	1898.....	588	1904.....	1,212
1892.....	2,713	1899.....	434	1905.....	615
1893.....	406	1900.....	402	1906.....	577
1894.....	999	1901.....	391	1907.....	436
1895.....	775	1902.....	480	1908.....	1,312
1896.....	694	1903.....	1,224	1909.....	456
1897.....	928				

In studying this "case" line it must be borne in mind that some reduction in the number of cases reported since 1898 is due to the placarding of houses and to the school reports, because in 1898 we commenced to placard houses and added from time to time new regulations, and now we make the following requirements:

1. Placarding of houses.
2. Semiweekly reports to school teachers excluding all children in the infected house until released by the health department.
3. Fumigation.
4. Health department certificates permitting children to return to school.

Inasmuch as we have no counteracting influence, such as the giving out of a free antitoxin practiced in diphtheria, that would tend to reduce the reporting of all cases of scarlet fever, there probably are many cases not reported.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

These four regulations, however, seem not to produce any lasting control, as evidenced by the "case" line from year to year. It is no doubt true that the regulations lessened the total number of cases each year, but not to such an extent as to warrant us in believing that they would prevent another epidemic like that which occurred in 1892.

The case-rate per thousand population in Baltimore during the past nineteen years was as shown in Table 3.

TABLE 3.—SCARLET FEVER CASE-RATE PER 1,000 POPULATION IN BALTIMORE

Year.	Case-Rate.	Year.	Case-Rate.	Year.	Case-Rate.
1891.....	3.10	1898.....	1.19	1904.....	2.28
1892.....	6.04	1899.....	.86	1905.....	1.12
1893.....	.86	1900.....	.79	1906.....	1.04
1894.....	2.06	1901.....	.75	1907.....	.77
1895.....	1.64	1902.....	1.91	1908.....	2.39
1896.....	1.45	1903.....	2.32	1909.....	.79
1897.....	1.91				

It appears also from this table that no real control of the disease exists.

As far as I have been able to compare other American cities with Baltimore, it is noticeable that in them also is the same want of control of the number of cases, even in those cities where the hospital accommodations for scarlet fever is provided and to a great extent used by the public. In this connection it is interesting to note that even in London, where it is said that nearly 90 per cent. of all cases are cared for in hospitals, there is a similar want of control. Table 4 is taken from Dr. Sidney Davies' article:

TABLE 4.—SCARLET FEVER CASE-RATE PER 1,000 OF POPULATION IN LONDON

Period.	Case-Rate.	Period.	Case-Rate.
1891-1895.....	5.3	1900-1905.....	3.6
1895-1900.....	4.4	1906.....	4.3

It would seem, therefore, that something more is needed than the four regulations above cited in common use in our cities, and the hospital isolation practiced in a few of them.

It is well known that the case mortality in scarlet fever during the last twenty-five years has been markedly less than in the previous years. In London this has been noticed since 1860, and this decrease in the mortality has been attributed to the improvement in sanitary conditions; but there has not been a corresponding decrease in the number of cases, although great reduction in the number has been produced by notification and isolation. It cannot be doubted that if notification and isolation were more rigidly carried out by physicians and health officials, a much greater reduction in the number of scarlet fever cases, or in other words, better control of the fever could be effected by health departments.

Why is it that a greater percentage of the cases are not reported? The following reasons may be given:

1. Mildness of attack, which results in many cases not being correctly diagnosed, and in many cases not being seen by physicians.

2. The opposition to house placarding among patients and their families for selfish reasons. Because of this opposition physicians do not report cases when they have doubt as to the correct diagnosis, and they give their patrons the benefit of that doubt.

3. The length of time a house is placarded or quarantined for each case. This difficulty is a serious one from the family's standpoint and we need very much enlightenment as to the length of time a patient is dangerous to others after the fever has disappeared.

If these difficulties are successfully overcome and proper isolation maintained, it is reasonable to believe that not only will epidemics be prevented, but the number of cases will be kept at the minimum.

To overcome the first difficulty, i. e., the "mildness of attack" two things at least are necessary—(1) proper instruction of the public; (2) proper training of physicians.

The Proper Instruction of the Public.—The method of giving such instructions will vary in different places, but the knowledge to be imparted consists of essentially two fundamental principles; (a) that scarlet fever, like all infectious fevers, may vary widely in severity, from an apparently simple sore throat to the so-called fulminating form producing death in a short time; (b) that all sore throats are communicable. We know of course that this is not strictly true, yet for practical purposes it makes a good working basis for the prevention of spreading disease.

The Proper Training of the Physician.—This consists, first, in an opportunity when a student to study clinically all so-called minor infectious diseases. A municipality should therefore not only make provisions for properly equipped hospitals for infectious diseases, but also should afford ample facilities for the instruction of students, because in the end the people are the gainers, not only by return to them of able physicians to treat such diseases, but also physicians who will more readily recognize such diseases in their milder forms.

The second difficulty, i. e., house placarding, is one that is at once overcome when all physicians are made to believe that in the end they are gainers by reporting scarlet fever promptly. Is it not true that there are but few physicians who do not dread being called on to care for such patients, and in consequence of such feeling are apt in one way or another to neglect them, thus causing increased danger to the patient and others.

The third difficulty, i. e., the length of time a house must remain placarded, is one that can be overcome only by more exact knowledge concerning the length of time that the scales of desquamation remain infectious. Until the germ of this disease is found it is impossible for department laboratories to assist the physician in raising the house quarantine until the desquamation has ceased, which frequently is prolonged to four, six, eight and even ten weeks. This long quarantine necessarily produces much hardship, especially to the poorer people who can least afford it, and also promotes ever-increasing carelessness as the weeks go by because of the difficulty of segregating children who are perfectly well although peeling and presumably dangerous to others. Dr. S. G. H. Moore, D. P. H. Medical Officer of Health, Huddersfield, in a paper on the subject¹ advocates the disregarding of the state of desquamation if all affection of the mucous membrane of the nose and accessory cavities has disappeared. By following this suggestion he reduced the duration of stay in hospitals from an average of 44.3 days to 29 days. His views in the discussions of his paper were antagonized by many, who, however, did not present facts to show how long the squamæ are infective. If, however, the desquamation period is dangerous throughout its entire length, or only in the earlier stages, it is important that all should recognize that the very mild cases of scarlet fever frequently show no desquamation even until near the end of the third week after the elevated temperature has disappeared. If the germ of

1. Public Health, London, 1908, xxi, 148.

the disease is in the squamæ of epithelium, it is obvious that the use of antiseptic baths during and after the febrile stage in all cases is indicated so that the danger may be reduced to the minimum should the quarantine be accidentally removed before desquamation has ceased.

All the difficulties that have been presented in this paper have, I fear, too much influence on health departments and cause them to exercise supervision over scarlet fever with much less enthusiasm than they do over diphtheria. I believe, however, that health officers can control the disease much more effectually under the following conditions:

1. If they endeavor to instruct the people through every channel of education that their protection for the present lies mainly in their own efforts; that they must consider all sore throats as dangerous to others; that the danger lasts during the entire period of desquamation; that this danger is lessened by antiseptic baths; that the infection of air-passages and accessory sinuses frequently continues longer than the period of desquamation; that isolation is the only means of preventing the spread of the disease.

2. If they urge not only the establishing of municipal hospitals for scarlet fever, but also advocate the early removal of all cases of the disease to it wherever proper isolation cannot be successfully established at the patient's home.

3. If they urge on the people correct information concerning the serious results, such as deafness, endocarditis, nephritis, etc., of even mild cases of scarlet fever.

4. If they urge on medical teaching institutions that medical students should not be granted diplomas until they have studied cases of infectious diseases under competent instruction.

2529 St. Paul Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. RAWLINGS AND JONES

DR. B. FRANKLIN ROYER, Harrisburg, Pa.: I think that boards of health and public health officials lay entirely too little stress on the proper observation of scarlet fever cases at the end of quarantine and on proper inspection of the oral and aural passages. For a period of years when I had charge of the Municipal Hospital in Philadelphia we watched carefully the cases that were discharged and never had return cases come from homes where patients had gone that still had some desquamation about them, provided the nose and ears were healed. I believe that as a practical working basis it is well to continue quarantine until desquamation has about ended. In every case coming to the hospital after a previous case had been returned to a home we were able to find either a discharging nose or running ear in the discharged case. I am inclined to agree entirely with Cameron (who made a most important study in London of "return cases," publishing a splendid report covering 120 or 130 pages on the subject), that the peeling skin after a month of illness is not dangerous to the public. Nasal discharges and ear discharges are highly contagious a month after illness.

I wish we knew more of the methods of dissemination of scarlet fever. There must be some epidemiological factor that influences the prevalence of the disease as well as influences its death rate. Certainly it is true, if we study morbidity rates and mortality rates over a period of years, that we will find intervals of rise and fall, just as we find unusual prevalence of variola at intervals of about ten years. Some unknown influence permits it to get a foothold and some unknown influence changes its virulence.

DR. H. W. HILL, Minneapolis: I would like to suggest, with regard to the infectiveness of scarlet fever scales, the possibility that the scales of the hands, since they get on them the

discharges of the throat, may be infective by direct carriage of the mouth discharges, while scales not so infected may be—probably are—harmless.

DR. H. DELAMATER, Kansas City, Mo.: We started our medical school inspection this year with a limited number of inspectors, and the medical inspection of the public schools had a great deal to do with suppressing the epidemic. We had, I believe, in one month 123 cases of scarlet fever. In a territory which comprises several nationalities, there were about 7,000 school children. It was found impossible to make physical examination of all the children as we started to do. We could not successfully do so and keep track of the number of scarlet fever cases that would develop. Instead, when a teacher or principal of a school would report to one of the inspectors that little Johnny Jones had been absent from school for three or four days, the inspector would at once visit the home and inquire why the pupil was not attending school. Investigation proved in many instances that it was a well-developed case of scarlet fever that had never been reported to the health department.

The medical inspector would call up the attending physician and inquire if he had seen the case; if so, why he had not reported it to the department of health. By constantly keeping watch over these suspected cases, in this manner we managed in four schools with about 6,000 pupils to have one school (the Washington) in which the attendance is composed largely of Hebrew and Italian children, to have only eighteen cases of scarlet fever. In another school with a population of which 95 per cent. are Italians, we had six cases, and in one parochial school we had eight cases of scarlet fever. I am convinced that in order to control the scarlet fever epidemic, a close medical inspection must be made of the public school children. I believe in cases of scarlet fever, patients suffering from nasal discharge are often released too soon from quarantine, thereby causing great danger of infection to others.

Quarantine in scarlet fever, is in my estimation, a hardship on poor people. This phase of the subject has not been given careful consideration.

If quarantine is maintained for a period of from thirty days to six weeks, the wage-earner of the family will be deprived of his daily wages and his family of its support. This would make it impossible to secure the necessities of life, unless he appealed to charitable organizations therefor. During the past winter where a release was asked from quarantine in case of scarlet fever, before the regular quarantine period had terminated, instructions were given the medical inspector to visit each case and if he found an absence of desquamation and discharge from the upper air-passages, a disinfection of the home was ordered and a release issued.

DR. R. M. WINN, Hannibal, Mo.: In rural districts where we have no bacteriologic examinations, I should like to ask how long quarantine should be kept up after diphtheria and scarlet fever? Of course, there is no scientific way of determining that without a bacteriologic examination.

DR. G. KOEHLER, Chicago: In our experience in the Chicago Department of Health we frequently find diphtheria bacilli in throats of contacts that had been immunized with antitoxin. This method alone is not sufficient to prevent the spread of disease, if it is not combined with the making of cultures.

DR. SENECA EGBERT, Philadelphia: I would call attention to what Newman has said about milk being a carrier of both diphtheria and scarlet fever. Several epidemics have been traced by Newman to milk carriers.

DR. B. FRANKLIN ROYER, Harrisburg, Pa.: Are your inspectors permitted to release patients from quarantine if they have a discharging ear or a running nose?

DR. I. D. RAWLINGS, Chicago: One point in connection with Dr. Jones' paper. We find where we have discovered cases of scarlet fever in the "peeling" stage among the pupils in a given room at school, if the duration of the disease has been twenty-five or thirty days or more, and we expect a crop of scarlet fever, it usually does not materialize; but we do find that where a child with scarlet fever of perhaps a week's duration has gone back to school with throat and nose highly infectious, or early in the peeling stage, then we do reap our crop of cases.

Strict quarantine works a hardship to a certain extent, but not as great as one would suppose. Very frequently we can isolate the patient and the attendant with toilet facilities in the rear living rooms and by sealing a door and disinfecting the front portion of the premises, leave a place for the workers to live in front if they provide their meals and toilet facilities outside. If the family elect to send patient to hospital, they escape these hardships.

In reply to Dr. Hill's question, there was a time in Chicago when very few cases of diphtheria or scarlet fever were reported. Rather than not have reports, we thought it would be better to have a record of the case, even if nothing was done; so to obtain reports we allowed physicians to assume the responsibility of preventing the spread of contagion and did not placard, if the physician said he was willing to assume this responsibility. It did good for a time; we obtained reports and physicians were in a measure on their honor; they did their best to try to instruct families as to quarantine; but gradually there came a time when they would write in the word "assume" and forget the instruction part of it, and nothing practically was done.

As to duration of quarantine of scarlet fever, that is a mooted question. In Chicago we, as a rule, quarantine until they are through peeling and free of all complications.

We guard against milk epidemics by furnishing to the food bureau each day the name and address of the milkman in every case of scarlet fever and diphtheria. These are tabulated by weeks, and if there is found an unusual percentage of cases on any one milkman's route, the supply is immediately investigated.

DR. C. HAMPSON JONES, Baltimore: In my paper I attempted nothing concerning the methods of health departments to control the disease. I merely wished to call attention to our method and stimulate inquiry to improve by making our house quarantine method more exact.

Concerning diphtheria, permit me to say that this high point in diphtheria in the year 1898 was the time I took charge of the work. At that time the methods that were put into play seemed to produce direct results. In cases of diphtheria I do not believe there is any reason at all for an epidemic in a city where there is a good number of men in the health department to do the work.

Concerning scarlet fever, we practice what is extensively practiced elsewhere. I believe that we follow up the cases fairly well (that is, the reported cases); prompt placarding of the houses is practiced, instructions are given to the people, and the rooms finally fumigated; yet I don't believe that such methods will result in lowering scarlet fever as has been done with diphtheria, for the reason that the early conditions in the children with scarlet fever spread the disease before the department is notified. Time and again we have taken convalescent, desquamating children in the street playing with healthy children, yet there has not been a single case developed from them as far as we could ascertain. Why, I am not prepared to say.

THE RELATION OF MODERN DENTISTRY TO THE TUBERCULOSIS PROBLEM *

S. ADOLPHUS KNOPF, M.D.

Professor of Phthisiotherapy at the New York Post-Graduate Medical School and Hospital

NEW YORK

Fifty years ago there was really no dental science. The tooth-extractor of that day, picturesquely attired, with his long flowing hair, who went from town to town with a brass band and extracted teeth in the market-place, while in the majority of cases he was a shrewd business man and showman and knew human nature, very rarely had any scientific training or, if

he had it, he did not apply it to his calling. The preservation of the teeth and the tedious processes of filling a cavity and doing crown and bridgework were unknown to him. He did not care to preserve teeth, and the more he extracted the more lucrative was his business.

It must be said to the glory of American achievements that dental science, the art of preserving teeth by a truly scientific method, had its birth in this country. The European dentist has for the last twenty or thirty years looked to America as the Mecca of dental science. While we physicians have gone to Europe to complete our education, the European dentist comes to America to learn the best and latest in his art. In the capitals of Europe it is the American dentist who has the élite for his clientele, and many a crowned head has an American dentist attached to his court as *Leibzahnarzt*, and in not a few European universities Americans and graduates of American colleges of dentistry are the leading teachers in this branch.

The latest and the most glorious development of American dental science is dental hygiene. It is this subject which brings me to my main topic, for dental hygiene means prevention and preservation, and these bear the closest relation to the prevention of tuberculosis.

One of the earliest, and a very frequent symptom of tuberculosis is an impaired digestion. Now, while I would not wish to say that bad teeth constitute the only cause of these digestive disturbances, if bad teeth are present, they are contributors to these pathologic conditions. Ulcerated teeth may give entrance into the bone to tubercle bacilli accidentally inhaled, or as the result of secondary infection.

Since it is impossible to control dental hygiene except among children, and, may I also say, equally impossible to teach the subject to the majority of adults, modern preventive medicine has very wisely directed its attention to the children, and of course to those attending the public schools. It has been stated that, if New York children are typical of the school children of the United States, there must be in the schools of this country 12,000,000 children having physical defects, more or less serious, that should receive attention from parents and family physicians. Of the school children in New York City and in the United States there must be handicapped by malnutrition, 41,000 in New York; 1,248,000 in the United States; enlarged glands, 5,460,000 in the United States; bad teeth, 8,988,000 in the United States; defective breathing, 7,092,000 in the United States. Dr. A. H. Merritt informs me that recent investigations have shown that no less than 95 per cent. of the children in a public school are suffering from decaying teeth.

It is not within my province to speak to-night of the manifold medical, esthetic and even economic aspects of bad teeth in children or adults. I only desire to emphasize the great need of good, sound teeth in the prevention of tuberculosis on the one hand, and in the treatment of it on the other. The child or adult having good teeth will masticate his food properly and thus digest and assimilate it to better advantage. I have already said that we cannot reach the adult population, at least not nearly as easily as we can reach the children. It is for this reason that our local health department has very wisely created a division of child hygiene, with Dr. S. Josephine Baker at its head. The first thing to do, if one wishes to accomplish anything in the line of dental hygiene among children, is to instruct

* Read by invitation at the meeting of the Dental Hygiene Conference and Exhibit at the Metropolitan Life Building, New York City, May 16, 1910.

the parents; and to this end our New York Health Department issues the following leaflet and distributes copies freely to all parents through the children:

DEPARTMENT OF HEALTH
THE CITY OF NEW YORK

INSTRUCTIONS TO PARENTS REGARDING THE CARE
OF THE MOUTH AND TEETH

The physical examination of school children shows that in many instances the teeth are in a decayed and unhealthy condition.

Decayed teeth cause an unclean mouth. Toothache and disease of the gums may result.

Neglect of the first teeth is a frequent cause of decay of the second teeth.

If a child has decayed teeth, it cannot properly chew its food. Improperly chewed food and an unclean mouth cause bad digestion, and consequently poor general health.

If a child is not in good health, it cannot keep up with its studies in school. It is more likely to contract any contagious disease, and it has not the proper chance to grow into a robust, healthy adult.

If the child's teeth are decayed, it should be taken to a dentist at once.

The teeth should be brushed after each meal, using a tooth-brush and tooth-powder.

The following tooth-powder is recommended:

2 oz. powdered precipitated chalk.

½ oz. powdered castile soap.

1 dram powdered orris root.

Thoroughly mix.

This prescription can be filled by any druggist at a cost not exceeding 15 cents.

The child should take the tooth-brush and powder to the school and receive instructions from the nurse as to their proper use.

ISSUED BY ORDER OF THE BOARD OF HEALTH

To give an idea of the scope of the work of this department, let me give a summary of its work as far as dental hygiene is concerned.

The Division of Child Hygiene of the Department of Health, through its medical inspectors and nurses detailed to duty in the medical inspection and examination of school children, gives each child in the public schools a complete physical examination. This includes an examination of the teeth.

During 1909, 231,081 children were examined of whom 131,747 were found to have defective teeth.

Of these latter, treatment was provided through the dispensaries and private dentists of the city for 4,616 children, of whom 2,591 had fillings and 2,025 had extractions. Each child was thoroughly instructed in the hygiene of the mouth. Children are assembled in the schools, in groups, by the nurses and are taught the use of the tooth-brush.

These instructions are repeated at the home each time that a nurse makes a home visit for any purpose whatever. At these home visits the instructions are made inclusive, so that they may be taken advantage of by all the children in the family and especially by those who have not yet reached the school age. A copy of the above-quoted circular is given to each child in the school and left by the nurse at each home visit.

The circulars referred to are available for distribution by any agency in the city which requests the supply, and are at present in use in the schools of the Children's Aid Society and many of the other free schools of the city. This gives an idea of dental hygiene in its rela-

tion to tuberculosis as far as it can be accomplished among the pupils of our public schools.

The modern treatment of tuberculosis consists in the judicious use of fresh air, plenty of good food, plenty of good pure water inside and outside, careful regulation of rest and work and medical supervision. The proper feeding of the patient is one of the most essential factors. It cannot be done if the patient has bad teeth. It is very easy for us physicians to say to a patient when we examine him and find his teeth defective, "Have your teeth attended to." We say this daily to our poor consumptives, but I need not tell you why so many of them do not obey our instruction. There are very few free dental dispensaries in this city and the same may be said of many other cities; and many dispensaries require, and perhaps justly so, that the patient pay at least the cost of the material—amalgam, etc. We have in the greater city of New York alone from 40,000 to 50,000 consumptive poor. I do not believe that I exaggerate when I say that the majority of them need dental attention, and I know that it is a fact that only a very small minority get it. Some of our largest tuberculosis sanatoriums and hospitals in this city are without a dentist and all the dental work that is done is performed by the medical interns, and consists in extracting painful teeth. I do not believe that this is considered good dentistry in the light of modern dental science. Yet it is done every day. There are hundreds of the consumptive poor in our institutions who should have an entirely new set of teeth because they have but a very few bad teeth left; and still we say to them, "Chew your food well and eat plenty." How can we expect these patients to chew well and eat plenty of food and get well when they are thus handicapped in the most essential part of the treatment?

It was not my purpose in this paper merely to tell you of the relation of modern dental hygiene to the tuberculosis problem. I would be remiss in my mission did I not plead with you and particularly with men and women of wealth, to help us in the solution of this phase of the tuberculosis problem. One way to help is to create more dental dispensaries, and so to endow them that good work can be done, the workers paid, and the material furnished gratuitously to worthy patients. Every sanatorium or special hospital for consumptives should have one or several dentists attached to its staff according to the number of its patients, with a special well-equipped office, and an abundance of material needed for the efficacious treatment of all patients whose teeth need attention.

Here is certainly a field of true philanthropy and a splendid opportunity to serve a good and noble cause, and thus to be helpful in the attainment of that goal for which we are all striving—the eradication of the Great White Plague.

It is gratifying to note here that, following on the announcement of the Thomas A. Forsyth foundation of \$500,000 for the care of children's teeth in Boston, active steps in campaigns for oral hygiene are being taken in several places. The prevention of tuberculosis and other diseases seems to be the main object of the dentists. At a recent meeting in Baltimore the State Dental Examining Board and representatives of the Maryland and Baltimore Dental Associations decided to conduct an educational campaign on the care of the teeth. An exhibition will be held in June. At Rochester, the Dental Society of that city has just voted to work in close cooperation with the Rochester Public Health Association. Similar movements are being forwarded in Lynn, Brookline and other cities.

16 West Ninety-fifth Street.

FURTHER OBSERVATIONS ON THE MILK
SUPPLY OF WASHINGTON, D. C. *G. LLOYD MAGRUDER, M.D.
WASHINGTON, D. C.

At the meeting of the American Medical Association held in June, 1907, I had the honor of taking part in the symposium on milk, held in this Section. At that time I submitted some observations on the origin and progress of the movement for the betterment of the milk supply at the national capital. Attention was called to statements made in the "Report on Typhoid Fever in the District of Columbia,"¹ submitted by the medical society of the city to the House Committee on the District in 1894, and to the report of the Washington Milk Conference. This report was issued subsequently, Aug. 20, 1907, by the Department of Agriculture.²

Consideration of this subject is again desirable from the facts that national, state and municipal authorities have not yet fully realized the gravity of the situation; that many physicians still appear to be either ignorant or indifferent to the dangers, and that only recently at Washington, the National Association for the Study and the Prevention of Tuberculosis, in a series of resolutions regarding the pasteurization of milk showed itself loath to admit positively conclusive evidence of the communicability of bovine tuberculosis to man.

HISTORY OF EFFORTS FOR PURE MILK

Much interest was manifested in the presentations, which I made and great satisfaction was expressed that the officials and the scientific experts of the United States government had so actively joined in this movement for the improvement of the public health. I was so impressed with this reception of the work of the Washington Milk Conference that immediately on my return to Washington I sought an interview with Mr. Roosevelt, then President of the United States. At this interview I submitted the following letter:

In view of the agitation that is now going on in Europe and this country with reference to the question of the influence of milk on infant mortality, as well as the causation of tuberculosis, typhoid and scarlet fevers, and diphtheria, I would respectfully suggest that you direct the Bureau of Public Health and Marine-Hospital Service to make a thorough investigation of the milk industry in the District of Columbia from the farm to the consumer. For this purpose the Bureau should be empowered to have the cooperation of other departments of the government, and proper credit should be given for such aid.

Several foreign governments have recently ordered such investigations, and the reports are frequently quoted by writers in the United States on these subjects. These writers have expressed many divergent views.

The recent investigation conducted by the Bureau of Public Health and Marine-Hospital Service into the cause of the prevalence of typhoid fever in the District of Columbia, which report, including an examination of the milk-supply in the City of Washington, has been printed and will be issued in a few days, and the work of the Department of Agriculture concerning the milk-supply at the farms, have shown that many lives could have been saved and numerous cases of disease avoided by more careful attention to the health of the dairy-

man, as well as of the cows, and the handling of the milk at the farm, in transportation, and distribution in the city.

Much valuable information has been accumulated by both departments, which can be consolidated and developed so as to be utilized as a standard not only for the District of Columbia, but for the United States. This standard is very essential at the present time, and, with the facilities at the disposal of the United States government, should have equal weight with that of any other government.

It can be readily shown that much can be done to improve the milk-supply without materially adding to the cost of the farmer and thus to the consumer.

The report of such an investigation should be freely illustrated that it may serve as an educational document.

President Roosevelt had previously shown great interest in public health matters. He grasped the importance of the subject and immediately directed an investigation, which was conducted by recognized experts in the United States Department of Agriculture, the United States Public Health and Marine-Hospital Service of the Treasury Department, and Dr. W. C. Woodward, health officer of the District of Columbia.

These experts elaborated and endorsed in every particular the work of the Washington Milk Conference. Their report under the title of "Milk and its Relation to the Public Health," was issued in January, 1908, by the United States Treasury Department.³ A revised edition was issued January, 1910, as Bulletin 56. While this publication is one of the most valuable ever issued by the government on public health, its value would have been greatly enhanced had it been submitted to a conference of writers of the various articles and the advisory board of the Bureau of Public Health and Marine-Hospital Service. Then probably the statements would have been in greater harmony and the endorsement of such a distinguished body would have added greatly to its authority.

The movement for the improvement of the milk-supply in Washington seems to have two distinct periods, one from 1894 to 1907, the other from 1907 to date. It will be desirable to recall some of the incidents connected with this movement and the results that have accrued. The progress of the first thirteen years was great; that of the last three years has been marvellous. The work done in Washington has exerted an influence not only in this country but also in Europe. In fact, its influence has also extended to Australia.

At a public meeting on Feb. 5, 1894, called for the purpose of aiding in the improvement of the sanitary condition of the city of Washington, the late Dr. Charles Smart of the army read a paper on "The Causes and Prevalence of Typhoid Fever."

The statements made by Dr. Smart were so startling and of such damaging character to the prosperity of the city that I called the attention of the Medical Society of the District of Columbia to them at the meeting held on February 7 and moved for the appointment of a committee to consider the subject. Dr. W. W. Johnston, Dr. C. M. Hammett and myself were appointed as such committee.

It was found that the conditions were even worse than Dr. Smart had represented. The committee considered that there were four principal causes for the occurrence of the disease: (a) Potomac water-supply; (b) pollution of the soil by the leakage from privies, defective sewers and the backing up of sewage from tidal movements; (c) to drinking of well or pump water; (d) drinking of contaminated milk.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Report on Typhoid Fever in the District of Columbia, submitted by the Med. Soc. of the D. C. to the Committee on the District of Columbia of the U. S. House of Representatives, June 14, 1894.

2. Sanitary Milk-Production. Circ. 114 Bur. Animal Industry. Dept. Agric.

3. Bull. 41 Hyg. Lab. U. S. P. H. and M.-H. S.

Among the recommendations of the committee, which were unanimously adopted by the medical society, were the construction of works for the filtration of the Potomac or Washington water—the only method of purification—the abandonment as rapidly as possible of all wells within the city limits; the repairing of defective sewers; the extension of the water supply and the sewers; the making of house connections to these.

The views of the committee as to the unhealthfulness of well waters were fortified by the results of bacteriologic examinations of water from thirteen wells in the city of Washington, made by Dr. J. J. Kinyoun. The water from nine of these wells was classed as bad, and from two as suspicious. It was recommended that the nine wells be closed and that the remaining four be kept under observation.

The influence of these two recommendations in the committee's report was immediately noticed:

9. Careful inspection of all dairies in the District from which our milk-supply is drawn, and the enactment of a law by which no milk shall be sold in the District without a permit from the health office. The inspection should cover an examination at the dairies of all possible sources of infection, including the water-supply.

10. The urging on the members of the profession of a careful collation of all facts bearing on the mode of infection in each case, and the advantage of reporting such facts to the society, and the propagation of the doctrine that immediate disinfection of the stools is the first duty of the physician as guardian of the health of the community.

It will be seen that pure milk and pure water, both in the city and at the farm, and the avoidance of contact with persons suffering with the disease, were the cardinal preventive measures recommended. The importance of these recommendations was immediately recognized. The United States Congress, as well as the city authorities, sought the aid of the medical society and individual members in framing remedial legislation.

That the recommendations made in 1894 were important and proper is attested by remarks made at the symposium on the causes of typhoid fever in the District of Columbia, held, on my motion, by the medical society, Feb. 19 and 26, 1908. Dr. George M. Kober, professor of hygiene, Georgetown University, said that "every point developed in recent discussions, save the influence of domestic filters and water-coolers, had received consideration before." Dr. Kober's investigation in 1895 confirmed in every particular the conclusion reached by the committee of the medical society in 1894, and developed two new facts, viz., the percentage of imported cases and the agency of flies in the transmission of the disease. Dr. William C. Woodward, health officer of the District of Columbia, said that the problem "Why is typhoid fever more prevalent in the District of Columbia than in other communities?" was clearly the problem before the medical society in 1894, when it inaugurated the campaign against the disease, and the clear realization of the problem to be solved contributed very largely, no doubt, to making the work of that committee as thorough and the results as complete as they were." It may safely be said that, aside from the one or two new facts brought to light by Dr. Kober's investigations, to which Dr. Kober has referred, no material fact has been disclosed by any subsequent investigation that was not anticipated in the report of the medical society.

The contention for pure water, pure milk, and the avoidance of contact, outlined in 1894, as preventive measures against typhoid fever is further sustained in

Bull. 44 of the United States Public Health and Marine-Hospital Service,⁴ as follows:

Thus far our studies indicate that typhoid fever will cease to be a problem in any community having clean water, an uninfected milk supply, and in which cases of the disease are treated as dangerous and contagious.

In drawing up the conclusions and recommendations of this report we have had the benefit of consultation with the advisory board of the hygienic laboratory, composed of eminent scientists and sanitarians. This privilege is appreciated and we desire to acknowledge the help we have received from the members of the board collectively and individually.

The first step toward carrying out the recommendation of the committee of 1894 was the passage of an act by Congress, approved March 2, 1895, which required the inspection of all dairy farms and a permit from the health officer of the District of Columbia before milk could be sold for consumption in the city of Washington. This requirement applied not only to the farms in the District of Columbia, but also to those in the states supplying milk to Washington.

CARD REGISTRATION OF DAIRIES

About this time Dr. W. C. Woodward was appointed health officer. He instituted the registration of the results of the inspection of the farms and depots on cards known as score-cards. Washington has the honor of being the first city in the country, if not in the world, to require inspection of the dairy farms as well as the milk depots in the city.

The use of score-cards has proved to be very popular as well as valuable. Many states and cities have adopted them. The United States Department of Agriculture reports that it has supplied them to about 300 cities in thirty-nine states, and that they are being widely used. The province of Ontario, Canada, has also adopted inspectors and the score-card system of recording such inspection. Previous to January, 1908, less than 50 cities had sought the cooperation of the Department of Agriculture in instituting inspection. These figures, however, do not represent the full extent of the use of the score-card system as it has been formally adopted by the state health authorities of fifteen states, and is being introduced by them in the cities under their supervision.

This inspection has revealed many unfavorable conditions both at the farm and at the city depot. In sanitary houses, milk houses and barns were common. The attendants on the cattle were careless of their personal habits and frequently were suffering from disease, sometimes of a contagious character. Cattle were frequently found covered about their flanks, legs, udders, and tails with manure and other dirt, which readily dropped into the pails while milking was being done. Cattle were many times found suffering from constitutional diseases as well as local affections of the udder. Flies swarmed about the premises. Frequently on the surface of the milk in the pails floated dead and dying flies. With the knowledge now available of the habits of the fly, this condition alone is a most dangerous source of milk infection. Dr. L. O. Howard in a recent publication by the Department of Agriculture suggests that the common house fly be known as the "typhoid fly." The presence of sediment in the milk containers was a common occurrence. This is especially dangerous, since it has been shown that the ingredients are pus cells, blood, epithelium, barn-yard manure, and

4. Bull. 44 Hyg. Lab. U. S. P. H. and M.-H. S., May, 1908, p. 9.

varied bacteria, including colon bacilli, and, as shown by Schroeder and Cotton, very commonly the tubercle bacillus.⁵

Few, if any, facilities were found for boiling the water to cleanse the utensils used in the handling and transportation of milk, the hands of the milkers, or the udders of the cows. Polluted water readily contaminates milk. This contamination rapidly multiplies at a temperature above 50 F. The knowledge which is rapidly being accumulated as to chronic carriers of the typhoid bacillus, and the common custom which prevails in rural communities of depositing human excreta on the ground, frequently in close proximity to residences, barns, and water-supplies, demand that the water-supply on dairy farms should be frequently examined and carefully guarded against contamination. The location of the premises for the storage and the handling of dairy products in the city depots was frequently most objectionable and at times entirely unfit for such purposes.

The following are some results of one year's use of the score-card system of inspection at Indianapolis:

Dairies scored, 717.

Barns improved, 381.

New barns built, 41.

Milk rooms built or repaired, 319.

Visits made by request to advise about constructing new barns or repairing old ones, 137.

The report of the official in charge says:

While at first we met with serious opposition, producer and dealer have become convinced that instead of persecution, the work is for their betterment.

Numbers have thanked us for insisting that they improve their conditions, stating that they do not see how they could have produced milk under the conditions they did.

The records of inspection as kept on score-cards show the result of intelligent inspection of the dairy farms supplying milk to Richmond from May, 1907, to May, 1908. The first inspection in May gave an average of 41.5 out of a possible 100; the inspection in April of the following year, twelve months later, gave an average of 72 for the same premises. This demonstrates a gain of nearly 100 per cent. for the year. The improvement was steady throughout this time.

In the annual report of the Richmond, Va., health department for 1908 the dairy inspector in his report to the chief health officer says: "The disposition among our dairymen to improve their plants is wonderful, and all speak highly of the work of the health department."

Washington city also furnishes an excellent illustration of the effects of intelligent inspection. The inspectors and the producer have learned to understand each other. Many of the farmers welcomed the criticisms and proceeded to remedy these defects, as it was found that much could be done at an insignificant outlay of time and money. Much higher scores were given in many cases on the second inspection. As a result of this educational inspection much milk is delivered to the distributing depots with less than 2,000 bacteria to the cubic centimeter.

At the meeting held Sept. 22, 1909, in Washington, of the Milk Producers' Association of Maryland, Virginia, and the District of Columbia, President Thomas in his address reminded the members of the association that the day was past when the milk inspector was "looked on as an irreconcilable enemy."

Such expressions show the spirit with which intelligent inspection is met. This educational inspection means much to both producer and customer. It contributes not only to the health of the families of both, but also to that of the dairy herd. It is a well-known fact that typhoid fever prevails to an alarming extent in rural communities. It has been found that it is two and a half times more prevalent in the counties of Maryland than in the city of Baltimore. Tuberculosis is also quite common in the country.

RESULTS OF INSPECTION

Inspection has worked well; it should be perfected and extended. It should be assumed by state and municipal authorities and not left to the enthusiasm of public-spirited physicians and other citizens. Washington has apparently had most satisfactory results from the requirements for inspection. Dr. W. C. Woodward, health officer of the city of Washington, D. C.,⁶ says:

The death-rate from diarrheal diseases among infants during the five-year period 1880 to 1884 was 162 per 100,000. During the next five-year period it was 168, and from 1890 to 1894 it was 175. In 1895 the milk law was enacted. From 1895 to 1899 the death-rate fell to 135; from 1900 to 1904 it fell to 109, and in 1905 it was only 104, and in 1906, 1907, and 1908 only 97 per 100,000.

In 1909 it fell to 72. It is gratifying to see that 405 fewer babies died in 1909 than in 1894, the year before the milk law was passed.

The diagram that accompanies Dr. Woodward's article (Chart 1) shows the above facts graphically.

MILK AND WATER AS AGENCIES

The improvement in the death-rate from diarrheal diseases, typhoid, malarial and typhomalarial fevers has also been very marked in the period since the enactment of legislation governing the milk supply, and especially so since the active movement for its improvement started in 1907. The title "typhomalarial fever" is no longer used in the classification of diseases. It is a question if the many deaths attributed to malarial fever should not be considered as typhoid. The data of the one are similar to those of the other. Chart 2 well illustrates these observations. The rate 33.2 from typhoid fever in 1909 encourages the hope that Washington with continued improvement in its milk-supply will soon attain a much lower death-rate.

The rate in 1909 would have been lowered had the hospitals had a more nearly normal death-rate. There seems to be a connection between the death-rate and the milk-supply of the hospitals. In 1909 there were 780 cases of the typhoid reported with 114 deaths; 70 of these deaths occurred in hospitals. With the normal death rate of 10 per cent. 36 lives should have been saved.

With the limit of safety of "inspected" raw milk fixed at 100,000 the following numbers of bacteria per c.c. were found in milk furnished to Washington hospitals: 2,000,000; 2,800,000; 3,500,000; 4,000,000; 5,000,000; 10,000,000; 10,000,000; 15,000,000; 50,000,000; 111,000,000.⁷

The mortality from typhoid in some Washington hospitals reached the appalling rates of 25, 20, 18 and 16 per cent., although a few have the normal death-rate of 10 per cent. But in only one instance was the German

5. See Bull. 99 and Circ. 118, Bureau Animal Industry, Dept. of Agric.

6. Bull. 41 Hyg. Lab. U. S. P. H. and M.-H. S.

7. See Bull. 41 Hyg. Lab. U. S. P. H. and M.-H. S., p. 431, et seq.

tions has drawn attention to the necessity of immediate study of the significance of streptococci in market milk.

The rapidly accumulating reports of outbreaks of typhoid fever resulting from milk infected by bacillus carriers have excited an increased interest throughout the world in the improvement of the milk supply. Dr. Biggs, like many others, has been so impressed with the danger from this source that he considers it almost impossible to secure a safe milk-supply without careful and repeated inspection, including complete and repeated bacteriological examinations of every one connected with the production and handling of milk. As a result of his report, covering this and other points, the New York City Board of Health has adopted an order requiring satisfactory pasteurization of milk used for drinking purposes.

In the fall of 1908 over fifty cases of typhoid fever in Washington, D. C., were traced to the supply of milk from a single farm. The owner was a bacillus-carrier. The supply of milk from this farm was stopped.

From the well-known prevalence of rural typhoid, the presence of bacillus-carriers, and the existence of contaminated water-supplies at many farms which can readily contaminate milk, it seems that milk is a far greater factor in keeping up the typhoid rate in Washington than a number of writers have been willing to admit. I have always contended that dairy products were the principal sources of the disease. In view of recent investigations, I reassert my position.

BOVINE TUBERCULOSIS

During the past three years extraordinary progress has been made in the study of the relation between human and bovine tuberculosis. The position of Koch that bovine tuberculosis is a negligible factor in the causation of human tuberculosis is no longer tenable.

The work of Schroeder and Cotton on this subject attracted universal attention. It was deemed to be of the greatest importance. The British Royal Commission to inquire into the relation of human and animal tuberculosis, confirmed these experiments in every particular, and so reported to the British Parliament in January, 1909, in its "Third Interim Report." Their report was based on the information obtained from these repeated experiments.

Influenced by this report the Board of Agriculture and Fisheries of Great Britain issued in May, 1909, "The Tuberculosis Order of 1909." This order provided that after Jan. 1, 1910, milk sold in Great Britain should come from tuberculin-tested cows, or should be sterilized. These two paragraphs from this order are very positive:

As your local authority are doubtless aware, the subject of tuberculosis in man and in animals, and the relations between the disease in human beings and in animals has been under careful investigation during recent years in this country and abroad, and various phases of the question have been inquired into by successive royal commissions. So far as regards the possibility of the transmission of the disease from affected bovine animals to man, the board are satisfied that it must now be accepted as a fact that tuberculosis is transmissible by the agency of milk used for human consumption. The Local Government Board concur in this view, and a bill was introduced in the House of Commons by the President of the Local Government Board on the 25th inst. designed, *inter alia*, to afford protection to the public health from the risk of the spread of tuberculosis by the means of milk used for human consumption.

In considering the question in relation to animals, the fact that the disease is communicable to man by milk has a ma-

terial bearing on the measures to be adopted. Any action which results in the reduction in the number of tuberculous bovine animals in the country must reduce the risk of the spread of tuberculosis amongst the community, and if it were possible to eradicate from this country the disease in animals, a material step forward would have been taken in the campaign against the disease in man.

The accumulated testimony on the communicability of bovine tuberculosis to man was greatly accentuated in a paper by Dr. W. H. Park, director of the research laboratories of the Health Department of New York, which he submitted in Washington, May 3, at the meeting of the National Association for the Study and Prevention of Tuberculosis.

In this paper he showed that 22 out of 84 cases of tuberculosis of children under five years of age showed the bovine type of tubercle bacilli. Dr. W. H. Welch noted that the cases reported by Dr. Park were not selected cases.

PASTEURIZATION AND STERILIZATION

Even though the danger of contracting tuberculosis due to bovine tubercle bacilli from dairy products can be eliminated, if we can obtain milk from healthy cows, there still remains the danger of contracting tuberculosis, due to human tubercle bacilli and other diseases from contaminated milk. Milk can be made safe, however, by the proper application of heat. There are two terms applied to the results of heating milk, pasteurization and sterilization. These two terms must not be confounded; the former is a process that requires the application of a much lower degree of heat than is effective for the latter. Sterilization means the killing of all the germs that may be present in milk. Pasteurization means the destruction of the disease germs that are of more common occurrence in it, such as those of tuberculosis, typhoid fever, diphtheria, etc. The investigation of General Sternberg, confirmed by Dr. M. J. Rosenau, especially, have shown that the common or pathogenic bacteria are unable to retain their life and virulence when they are exposed to a temperature of 60 C. or 140 F. for a period of twenty minutes, and that the value of milk as an article of food is not perceptibly affected by the designated temperature. Professor Kastle, of the University of Virginia, after extensive investigation, concluded that the designated temperature, maintained for a sufficient time to destroy the disease germs of common occurrence in milk, has no deleterious effect on its nutritive value. Thousands of children under the eyes of careful and competent observers have been reared successfully on milk so treated without the slightest signs of scurvy or rickets. Rowland G. Freeman has recently shown that such outbreaks have been traced to mixed feeding; that milk was an insignificant factor. His observations were strengthened by those of numerous observers in Europe. There boiled or sterilized milk was almost exclusively used. The temperature required for sterilization does destroy the enzymes and impair the nutritive value of milk. This emphasizes the necessity for a proper appreciation of the processes of pasteurization and sterilization.

It must be kept in mind that the advocates of pasteurization do not countenance the use of unclean or old milk; on the contrary, they insist that pasteurization should be applied, but simply as a measure of safety against the dangers from milk which no other precautions can obviate. Furthermore, pasteurization should be practiced under proper supervision, and that form of

so-called pasteurization which is to some extent commercially practiced, during which milk is heated to an unnecessarily high temperature for barely a fraction of a minute, should be emphatically discountenanced. Health officers should be provided with properly equipped laboratories to keep constant check on the output of pasteurizing plants. Progressive men engaged in the distribution of milk, cream, and ice-cream employ skilled bacteriologists. There are two noted instances in Washington where this precaution has been taken. The rarity of typhoid fever amongst the customers using this pasteurized milk and ice-cream has been marked. All milk, whether pasteurized or not, should be consumed as soon as possible after milking.

It frequently happens that properly pasteurized milk cannot be secured on the market. The observance of the following directions for the home pasteurization of milk, by L. A. Rogers of the Bureau of Animal Industry, can then be practiced:

Milk is most conveniently pasteurized in the bottles in which it is delivered. To do this use a small pail with a perforated false bottom. An inverted pie-tin with a few holes punched in it will answer the purpose. This will raise the bottles from the bottom of the pail, thus allowing a free circulation of water and preventing bumping of the bottles. Punch a hole through the cap of one of the bottles and insert a thermometer. The ordinary floating type of thermometer is likely to be inaccurate, and if possible a good thermometer with the scale etched on the glass should be used. Set the bottles of milk in the pail and fill the pail with water nearly to the level of the milk. Put the pail on the stove or over a gas flame and heat it until the thermometer in the milk shows not less than 150 nor more than 155 F. The bottles should then be removed from the water and allowed to stand from twenty to thirty minutes. The temperature will fall slowly, but may be held more uniformly by covering the bottles with a towel. The punctured cap should be replaced with a new one, or the bottle should be covered with an inverted cup.

After the milk has been held as directed it should be cooled as quickly and as much as possible by setting in water. To avoid danger of breaking the bottle by too sudden change of temperature, this water should be warm at first. Replace the warm water slowly with cold water. After cooling, milk should in all cases be held at the lowest available temperature.

This method may be employed to retard the souring of milk or cream for ordinary uses. It should be remembered, however, that pasteurization does not destroy all bacteria in milk, and after pasteurization it should be kept cold and used as soon as possible. Cream does not rise as rapidly or separate as completely in pasteurized milk as in raw milk.¹¹

CONCLUSION

If the lessons taught by these observations be heeded, a great step will be made toward the control of milk-borne infections. Dollars spent by the thousand for prevention will save millions needed for the care of those afflicted with disease, to say nothing of the days of suffering that will be avoided.

It can no longer be doubted that dairy products—and this term includes milk, cream, ice-cream, butter and cheese—are excellent vehicles for the dissemination of pathogenic bacteria. Outbreaks of typhoid fever, scarlet fever, diphtheria, sore throat, and intestinal disorders of children have been definitely traced to contaminated milk. The proofs of the danger of tuberculous infection from these products are accumulating daily. The opportunities for such infection are manifold. With the greatest vigilance on the part of trained inspectors and the greatest care on the part of the householder this infection cannot be entirely prevented. The house-

holder also has a duty to perform to protect milk from contamination after it has been delivered.

Of course the carrying out of the recommendations for the production and delivery of more sanitary milk entails additional expense at the farm and the city depot. But the receipt of a single additional cent for a quart of milk would justify many improvements by the producer and the seller. A single case of sickness or a funeral resulting from contaminated milk would cost far more than the slight additional price of better milk for a long period.

Under these circumstances there should be no question about demanding that milk should be produced under conditions that would entitle it to be entered under Class 1 (certified milk) or Class 2 (inspected milk) as prescribed by the Washington Milk Conference; or, in case it does not conform to the requirements for these classes, that it should be efficiently pasteurized (Class 3). This classification, prepared by Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, and approved by the Washington Milk Conference, is more fully described in Circular 114 of the Bureau of Animal Industry already referred to. It is a classification that will give us, not bad, indifferent and good milk, but good, better and best milk. To produce milk under any of these classes rigid inspection is required.

The prices that must be charged for the first class make it almost impossible for the man of moderate means to avail himself of such milk. Class 2 can be produced at a lower price, but would still cost more than ordinary milk. Hence the masses must resort to the milk of Class 3. With the precautions suggested, they would reasonably be assured in the use of this milk of a safe and wholesome supply at but a trifling advance in the price.

Those who are interested in the improvement of the milk supply and who wish to obtain a comprehensive summary of facts bearing thereon, are advised to write to the Secretary of Agriculture at Washington, D. C., for a copy of Circular 153 Bureau of Animal Industry, issued April 28, 1910. The title of the circular is "The Dissemination of Disease by Dairy Products and Method of Prevention."

Stoneleigh Court.

ABSTRACT OF DISCUSSION

DR. WILLIAM C. WOODWARD, Washington, D. C.: After searching for a proper basis on which to determine whether or not we have achieved any substantial results through our milk inspection service, I selected deaths from diarrheal diseases only, among children under 2 years of age, and it is to those alone that the chart exhibited by Dr. Magruder relates. It is true, as Dr. Magruder says, that the method of milk inspection in use in the District of Columbia was original with a committee of the medical society of the district, on which committee I had the honor to serve. Working quite independently of anything that had been done previously, so far as we then knew, we devised it. Later, however, it came to my attention that as far back as 1873, the three food inspectors who were then doing duty in the District of Columbia had united in a formal report to the then board of health recommending this very method of inspection. This proposed method included not merely the inspection of the farms by the inspectors in the service of the then existing board of health, but included also the permit system, whereby one city or one state can control the situation outside of its territorial jurisdiction. Later, about 1884, one of my predecessors actually inspected some of the dairy farms supplying milk to the district. I mention these things so that honor may go where honor is due. Had these early workers had back of them such public sentiment as was created by the publication of the admirable report of

11. Circ. 152, Bureau Animal Industry, Dept. of Agric.

Dr. Magruder's committee, that first pointed out the probable sources of typhoid fever in the District of Columbia, their work would doubtless have continued. As it was it died utterly, even its memory having passed from the public mind.

Dr. WILLIAM H. WELCH, Baltimore: I think that a model demonstration exhibited in the national capital is significant and impressive, and likely to be productive of results to the rest of the country. Of course, we all realize, I think, that sanitary problems connected with milk are about the most urgent and perplexing, in many ways, of solution, of any. Some years ago in Baltimore we had made an endeavor, at least, to start the same sort of a campaign of education of the public regarding milk that we had attempted in regard to tuberculosis. It may not be known to all that the first tuberculosis exhibit was that arranged by Dr. Fulton in Baltimore. It was a great success there, far beyond any thing we dreamed of; and since then it was adopted elsewhere; but give him credit for that. We have attempted to do the same thing for milk, but it has not had the same response; but I think it is a good idea, and that possibly the time is now more suitable.

It may be that the large mortality in the hospitals is due to the poor quality of the milk used there; but there is a question whether the high mortality of those particular hospitals is due to the milk.

Dr. B. FRANKLIN ROYER, Harrisburg, Pa.: Members of this Section might be interested in the educational campaign undertaken by the Department of Health in Pennsylvania. Three years ago our health officers, the men who institute quarantine for us, placard and disinfect premises, etc., were trained for dairy inspection by placing suitable literature in their hands and by having them further instructed by the county medical inspector under whom they work.

At the present time all dairy farms in the commonwealth are inspected twice each year. In our winter inspection completed some time in March we reached a total of 55,000 farms and stables producing milk for sale to creameries, condenseries, cheese factories, wholesalers, retailers and for sale from individual dairies. The inspection up to the present time has not, of course, been done with the great detail practiced at Washington, and it in no way interferes with towns and cities that have already some system of inspection of their own. In fact, it is a campaign intended to reach the men who are handling the cows and stables and caring for the milk in the country. After the inspection is made circulars are handed these men describing conditions that should exist, emphasizing particularly the need for cleanliness of cows' flanks and udders, the need for excluding all forms of dirt from the milk and the importance of cooling it at once.

We are now sending letters to each producer calling attention to the insanitary conditions found. This work reaches far back into the country district where the initial infection of milk commonly begins.

We have a statute which makes communicable diseases reportable, typhoid included. On receipt of such report telling us of the existence of typhoid, diphtheria or scarlet fever on a premises from which milk is sold, our county medical inspector at once visits the premises and establishes the department's regulations for the control of the milk-supply. If such regulations cannot be established, the sale of milk is stopped or the stock is transferred to a neighboring farm.

Dr. WILLIAM EDWARD GRANT, Louisville, Ky.: As has been suggested, we look up to Washington; what governmental authorities order and advise has great influence throughout the entire country. I am acting as health officer for my city, and we are much interested in what Washington tells us. Through such influence, in part, we have been able to get every cow that produces milk for the city I live in tuberculin-tested. We had a hard fight to accomplish this and it took six to eight months of very earnest and constant endeavor. The health officers of the state first issued an order that no milk should be sold in our state that did not come from tuberculin-tested cows; and then the city health officer wrote a letter to each dairyman who sold milk in Louisville, telling him that after a certain date no milk would be permitted to be sold in our city that did not come from a tuberculin-tested cow.

At the same time an order was given that no new cows should be brought into the herd, unless they were tuberculin-tested; and that the dairymen should clean up their dairies and disinfect them according to methods suggested by the government at Washington. In that way we have improved the milk-supply wonderfully in our city; and have also interested our dairymen in keeping it improved. The education to them has been of great value. The fact is, I believe, the dairymen usually are glad to improve bad conditions, if we tell them how. They didn't know how; and they welcomed somebody who would come and say "This is wrong; and this is the way to correct it." Now we have dairy inspectors go to these dairies and see that the cows are properly curried, and the udders properly washed before they are milked, and the milk taken to a separate place and cooled; and we try to persuade our dairymen to bottle it at once and bring it to market in that way.

I think that bovine tuberculosis is very dangerous to children, but not dangerous to adults. The children in the hot weather are a good deal run down, no doubt, by the heat; and the germicidal power of the blood being lower, the germs find easy access and a location in the alimentary canal of infants, and in that way they become diseased. That is avoided in part by having none but pure milk distributed. "The Babies' Pure Milk Fund" is doing a good work with us, and we have also pasteurized and certified milk, and in this way see that the babies get only the best.

Dr. SENECA EGBERT, Philadelphia: A few years ago, when the newspapers of New York were advocates almost universally of pasteurization of the milk, if I remember rightly, Dr. Darlington, of the board of health, opposed pasteurization at the dairy, the objection being that it gave the consumers a false sense of security, since a considerable period elapsed from the time the milk left the dairy until it reached the consumer, and there was the possibility that in the time of transit the milk might be contaminated, especially if carelessly handled. It does seem to me that that objection can be made a very strong one—that the milk can be pasteurized, and yet, if the way be left open for careless handling on the part of the train men or the dairy dealers in the cities, that there is chance for danger there.

Another thing that I am glad Dr. Magruder mentioned was the fairness of giving the dairymen and milkmen—the producers—a higher price for the milk. It is unfair, it seems to me, for us to advocate this better milk, unless we are willing to pay for it. Any man who knows anything about farming, knows that it is a pretty hard thing to provide the things demanded—sanitary barns, good stock and all that—and then to get no more than 3 cents or thereabouts for the milk. We must educate the public to allow a higher price for the milk—see that they understand that that don't come into the category of things to be cheapened in the attempt to reduce the high cost of living. The question of inspection is the big question and I believe that we have yet to appreciate that in most of our large cities the cost of inspection is apparently prohibitive. It ought not to be, but we are not getting—at least, as far as the municipalities are concerned—as much inspecting nor as many efficient inspectors as we should have.

Dr. G. LLOYD MAGRUDER, Washington, D. C.: First in regard to Dr. Woodward's observation, I do not claim paternity of the idea of the inspection and permit system. I did claim and do claim that the report of the committee of 1894, embracing recommendation 9, quoted by me, directly caused the passage by Congress of the law giving this authority to Washington. Hence I think it is justifiable to claim the honor of being instrumental in the initiation of inspection.

As to Dr. Welch's observation, I said bad milk was probably the cause of the high death rate in hospitals. The lowest rate occurred where little milk was used. It is a great satisfaction that Dr. Welch has corroborated the statement that bovine tuberculosis causes from fifteen to twenty-five per cent. of certain cases of tuberculosis in children under five years of age.

In answer to Dr. Egbert's question, pasteurization should take place in the city under official supervision. I spoke of 50° F. as the danger line because of the rapid growth of bacteria in milk above this temperature. This prompts me to

mention the desirability of investigating the effects of freezing milk. I shall promptly take up this question with the Secretary of Agriculture. Three years ago the United States Consul at Chemnitz reported to the State Department that a German physician had recommended the transportation of milk in frozen blocks, since no deleterious influence was exerted by freezing. American officials caution against allowing milk to freeze. These divergent views interested me at that time. I sought without success to have them investigated at the Hygienic Laboratory. General Sternberg, chairman of one of the committees at the Yorktown Exposition, awarded first premium for milk to the Virginia Polytechnic School at Blacksburg. This milk was delivered partially frozen, after transportation 400 miles in jacketed cans.

The influence of this Section since 1907 on the milk problem has been so great that I thought it desirable to report what has been done in Washington. The symposium at Atlantic City in 1907 on the milk supplies of several cities received marked attention. The paper which I read at the symposium contained observations made by officials of the Bureau of Public Health and Marine-Hospital Service, of the Department of Agriculture, of the Health Officer of Washington, and of citizens in private life. Much enthusiasm was manifested at the information, which showed that the government authorities were so interested in milk and water supplies.

I had seen Mr. Loeb, Secretary to President Roosevelt, before I left Washington. Mr. Loeb stated that the President was opposed to a department of public health, but was heartily in favor of a bureau. On my return to Washington I saw President Roosevelt and reported the proceedings of the Association on public health matters. He showed marked interest. He directed the investigation of the milk supply as requested in the letter introduced in my paper. Many other valuable investigations along this line have been conducted since then by the government. Much of this interest is directly due to the impetus given to the movement in this section in 1907.

SCAB FORMATION IN THE NOSE ITS ETIOLOGY AND PREVENTION *

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"When all is said and done the local therapeutics [of atrophic rhinitis] seems to reduce itself to a thorough cleansing of the nasal mucous membrane, and the use of any simple application is as effective as anything. The severer remedies do not seem to have any material advantages over the milder ones. I am afraid that we have no specific, but I hope that one may be found and that the future will not, as in the past, show more failures than success."

These words form the closing lines of an article by Dr. George L. Richards, and about express the prevailing opinion held by rhinologists in regard to the treatment and cure of atrophic rhinitis, or true catarrh; that is, the formation of large collections of hardened mucus in the nose. The atrophic process in my opinion may be more truly regarded as a result rather than a cause of the scab formation. Be this as it may, whether *post hoc* or *propter hoc*, we are sure, at least, that we have as a result large roomy nostrils, filled with gummy collections of mucus of a desiccating character and a nauseating odor. In the early stages of the disease the nostrils are not so roomy, nor do the scabs become so dry and hard; but they rapidly cover the turbinates and fill up the vacant spaces, apparently in successive layers, until the nose is more or less completely occluded. Such

is the picture which is presented to us in a case of true catarrh in the earlier stages, that is, before the nose has become hollowed out, as it were, from the accumulated scab formation and the atrophic or drying-up process which take places beneath them has gone so far as to leave the whole interior of the nose almost functionless, as far as normal secretion, the purifying and moistening of the air, the function of olfaction, etc., go.

Confronted with a case like this we are at once inclined to look to the hidden recesses of the adjoining sinuses as the "fons et origo mali." We do this because there must be a cause for the gummy change which takes place in the secretions. This problem has puzzled the scientific world up to the present time.

ETIOLOGY AND TREATMENT

The etiology of atrophic rhinitis is wrapped up in such an interminable maze of theory and conjecture that to give even a brief outline of it would amount almost to a historical investigation. Among the most prominent of the etiologic factors to which it has been attributed may be mentioned syphilis, inhalation of dust, tuberculosis, anemia and chlorosis, tobacco and alcohol, hypertrophic catarrh, effects of a previous purulent rhinitis and suppuration of the accessory sinuses of the nose, fatty degeneration of the infiltrated cells, the trophoneurotic theories, and finally, penetration of micro-organisms, Lowenberg's *ozenacoccus*, etc.

To trace in detail the origin of these theories would only be a needless tax on you. I will therefore state briefly that in 1896 in a paper on "The Treatment of Atrophic Rhinitis" which I read before the American Laryngological Association I reported a case which had been successfully treated with local applications of Lugol's solution in the nose together with large doses of the iodid of potassium and such operative measures as would open the accessory sinuses and give free outlet to all inflammatory exudates, pus collections, etc. An exhaustive discussion followed this paper and almost all the different methods of treatment since then have been based on that discussion. On account of the fact being noted that whenever inflammatory secretions from any portion of the lower respiratory tract came in contact with the external air, they became coagulated or gummy and finally hardened, generally with a more or less fetid odor. It seemed evident that practically the same process occurred with scab formation in the nose.

It was necessary therefore to select some drug which would maintain the fluidity of these secretions and thereby enable the patient to expel the accumulations and prevent the noisome odor. The well-known influence of potassium iodid in producing lachrimation and increasing the nasal secretion naturally suggested that drug as the most efficient for this purpose. It was found necessary, however, to give it in increasing doses until a very large amount was ingested daily before his desirable result was accomplished. Of course this amount varied greatly in different individuals. Many patients were found who would absorb from 600 to 900 grains a day before the nasal secretions would remain fluid and this without any noticeable ill effects whatever; in fact, on the contrary, the gain in flesh would be rapid and the improvement in the general health would be very marked. I desire to emphasize this fact and to state that in every case in which I have used these large doses, together with the operative treatment, the scabs have ceased to form.

* Read before the South Carolina Medical Association, April 19, 1910

RESULTS

The importance of the discovery of any method by which the formation of these scabs may be stopped by the therapeutic effect of any drug through the blood, together with such surgical measures as will assist in eliminating the morbid processes, will be recognized when I state that I know of no other process in the literature of the subject which has been credited with like results. In the gradually increasing doses up to the large amounts herein advised, there were but few of the well-known constitutional effects of the drug exhibited; no salivation, but little laceration, no apparent ill effects on the kidneys, and few or no symptoms of iodism on the skin. In the cases which I have reported there was no history or symptoms of syphilis. The only case in which there has been any return of the scab formation was that of a boy aged about fifteen, who had marked cardiac insufficiency. After a violent case of epistaxis with severe reactionary fever he was removed by his parents and further treatment refused. The drug was always administered with six or eight ounces of water taken after meals. In these extremely large doses it appeared to liquefy the blood and doubtless the same action took place on the coagula in the nose. Hare gives the maximum dose of potassium iodid as from 100 to 200 grains, but I have been informed of cases in which as much as 1,500 grains have been ingested daily without apparent ill effect. My custom has been to begin with 20 drops of a saturated solution and run the dose up rapidly until the secretions in the nose become so fluid that the scabs are easily expelled. During this time, however, I make every effort to open the sinuses as freely as possible so as to give free outlet to all inflammatory secretions.

We are all familiar, of course, with patients with constitutional syphilis who will not tolerate potassium iodid in any quantity. Hence the presence or non-presence of syphilis does not appear to influence the toleration for the drug in any way, and hence also the extreme toleration for it in the large doses above mentioned did not lead me to assign syphilis as the underlying cause. It has been a noticeable fact, however, that those who have the scabs in the nose are almost universally extremely tolerant of the drug. I am not prepared to say just what the underlying condition or diathesis in the blood is. It seems to be recognized by a great many authorities to be syphilitic in many instances, but it is certainly not so in a great number of cases, as mercury seems to have no influence on them whatever, even when pushed to the verge of salivation.

The following illustrative case of a patient recently under treatment I will report because of the gratifying result obtained, and also for its instructive value.

The patient was a young woman, aged 18, of Irish descent, with every appearance of the most robust physical health. Her complexion was of the peach-blossom variety and was without a blotch. Her family were all healthy people and had never shown any signs of the disease. Her father died of tuberculosis, but she herself weighed 150 pounds and showed not the least tendency towards that disease. She had had the scabs in her nose for about one year, and was not aware of any special cause which produced them, except diphtheria, which she had in infancy. I found on examination that both nostrils would become impacted with scabs daily, and that it was only with great difficulty that she managed to extract them. She was put at once on potassium iodid and ordered to increase the dose as rapidly as possible. The anterior ends of both middle turbinates were removed successively so as to give free outlet to all inflammatory secretions, and the ethmoid sinuses were carefully curetted. The nostrils were also thor-

oughly cleansed twice or three times a week with a solution of mercury bichlorid and sodium bicarbonate. It is very gratifying to report that after each operation, and as the patient became more under the influence of the iodid, the scabs rapidly lessened until she had scarcely any at all and would go for days without the use of the douche. Subsequently the scabs have entirely disappeared. The largest amount of the iodid taken was only 180 grains daily.

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REPORT OF A CASE OF ANEURISM OF CORONARY ARTERY *

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This case is interesting, first because of its rarity. (On examination of the literature to date, I was able to find only three reported cases, this one making the fourth and being the only case that showed involvement of the right coronary artery); and secondly, because diagnosis has never been made ante-mortem.

Patient.—C. R., permit No. 6622, a negro man, aged 27, single, laborer, entered the St. Louis City Hospital Nov. 8, 1909. Dyspnea had extended over a period of four weeks, and there was slight edema of both ankles. Examination of the cardiac area revealed a systolic and a diastolic murmur at the base, a systolic and presystolic murmur at the apex and also a loud, rubbing sound over the entire cardiac area. There was no marked distress at this time. The patient's mother died of dropsy; otherwise family history was negative. He had rheumatism in the right shoulder several years previously. The patient smoked and chewed tobacco in moderation, consumed large quantities of beer and whiskey. He denied emphatically of having had syphilis, although he had gonorrhea several times. The present illness had begun three months previously with vague pains in the abdomen and left chest. The patient stated that he had felt ill ever since. During the last week or ten days his stomach began to swell, as he terms it, and two days previous to his entrance into the hospital he noticed that his legs were swollen and about this time he also had a cough.

Physical Examination.—Patient was of fair development and nutrition. Epitrochlear and postcervical glands were distinctly palpable.

Respiratory Apparatus: Respiratory sounds were loud and jerky in character. Vocal resonance was exaggerated over the entire chest.

Circulatory Apparatus: The area of cardiac dullness was greatly increased superiorly and to the right of the sternum and extended well beyond the left mammillary line. The apex-beat was displaced one inch to the left of the left mammillary line and was in the fifth interspace. At the base of the heart could be heard a seesaw murmur, which was conducted into the left axilla. At one time, a presystolic murmur was heard, but this murmur was not present at this examination. The radial pulses were regular and equal, but the volume was not very good. Edema of the legs had disappeared at this time, two days after admission to the hospital.

Digestive Apparatus: The abdomen was smooth and slightly distended. The liver dullness extended $1\frac{1}{2}$ inches below the costal margin in the right mammillary line. The left lobe was markedly enlarged. There was no pulsation anywhere about the liver. There was some dullness over the flanks, probably due to ascites.

Genito-Urinary Apparatus: The urine was amber, acid and clear; specific gravity 1015; it contained few epithelial cells and leukocytes.

Nervous system was negative.

Clinical Diagnosis.—Adhesive pericarditis, cor bovinum, endocarditis and multiple valvular lesions.

* Read before the St. Louis City Hospital Alumni Society, May 5, 1910.

Course of Disease.—Treatment consisted of elimination, cardiac stimulation and morphia. On November 28, twenty days after admission, the patient had a leukocyte count of 15,500. Repeated examinations of the sputum and physical findings had excluded tuberculosis. The patient at this time became very restless and complained of colicky pains in the stomach, especially well marked in the epigastric region. He assumed the knee-chest posture, as it seemed to relieve his pains somewhat.

On November 29 the patient complained bitterly of pain in the epigastric region in the median line. This pain had grown progressively worse during the past twenty-four hours. Palpation revealed a pulsating liver reaching down to the umbilicus. The pulsation was marked just below the ensiform cartilage. The patient assumed the knee-chest posture by preference. When seen on the morning of November 29, the patient was in great distress, the heart sounds being somewhat incoordinated. He soon became unconscious, with imperceptible pulse. He died quietly after vigorous stimulation had failed.

Autopsy.—This was held six hours after death. Rigor mortis was complete; body heat absent. There was slight distention of the abdomen, but no edema of the extremities. On making a longitudinal incision, there was a subcutaneous edema over the thorax and abdomen. About a liter of straw-colored, clear fluid was found in the abdominal cavity, but there was no peritonitis.

On lifting the sternum, it was found that the heart extended on the right side about 5 cm. beyond the middle line and reached the level of the second interspace. The apex was about two fingerbreadths to the left of the nipple line. The ascending arch of the aorta was dilated just above the aortic valves to the size of a goose-egg. Both auricles and ventricles were widely distended with blood. There were only 3 or 4 c.c. of pericardial fluid. Over the anterior surface of the right ventricle, there was a moderately fresh epicardial opacity, 3 cm. long by 3 cm. broad.

The left pleural cavity contained about 200 c.c. of blood-stained fluid, while the right pleural cavity contained about a liter of the same fluid. There were moderately firm pleuritic adhesions over both bases and the posterior surface of both lungs. The heart before being opened weighed 900 gm. After the expulsion of blood and clots, it weighed 600 gm. Both auricles and ventricles were filled with red blood and clots.

In the right interventricular wall there were two fluctuating dome-shaped tumors; one, arising just below the level of the pulmonary orifice, had a base 2.5 cm. and rose 1 cm. above the surrounding structures; the other mass was located a little below the tricuspid valve, about 3 cm. at the base, and was not so sharply elevated.

The overlying myocardium was grayish-yellow, with hemorrhagic spots scattered about the periphery. The pulmonary valve was free and translucent. The orifice measured 7 cm.

The left heart was dilated. The ventricular wall measured 6 cm. The mitral valve measured 11 cm. On opening the aortic ring, the knife passed through and opened a mass of old, brownish-yellow, friable thrombus at the site of the auriculoventricular margin. This thrombus was about 4 cm. in diameter and communicated directly with the right coronary artery, the opening to which easily admitted the index finger. The center of this thrombus was filled with fresh, currant-jelly-like blood-clot. The left coronary artery presented no anomaly.

The interventricular wall presented a slight bulging over an area that corresponded with the swelling noted in the right ventricle. The myocardium in this area was yellow and opaque. A few overlying vessels in the neighborhood were markedly congested. There was a marked yellow striation of the myocardium in the right ventricle, especially in the chordae tendineae, which microscopically showed fatty degeneration.

Above the aortic ring the aorta had a saccular dilatation 6 cm. in diameter with a depth of 3 to 4 cm. The wall of this aneurism contained secondary pockets, which varied from 1 or 2 mm. to 1 cm. in diameter. There was a marked thickening of the intima throughout the rest of the aorta, the surface being covered with rugae throughout the entire length of the aorta. The aortic ring measured 8 cm.

The abdominal aorta showed a regularly folded and thickened intima.

The left lung weighed 250 gm., the right 275 gm. Both were air-containing throughout and presented no areas of consolidation, although there was moderate dependent congestion.

Each kidney weighed 180 gm., was unusually firm, and of a dark wine-red color. The capsule separated easily. The cut surface showed a uniformly dark-colored cortex with distinct markings. The cortex was about 6 mm. in thickness.

The spleen was firm; its surface was smooth and dark slate-gray. The surface was firm and pulpy, was free, and the markings were distinct. It weighed 100 gm.

The liver was greatly congested and weighed 2100 gm. The cut surface showed a marked contrast between the fatty liver lobules and congested central vein.

The pancreas and adrenals were negative.

Anatomic Diagnosis.—Aneurism of the right coronary artery, thrombus of the coronary artery, acute necrosis of the myocardium, sacular aneurism of the aorta, fibrous pleuritis, pleuritic effusion, chronic passive congestion of liver, lungs, and spleen, and fatty degeneration of the heart.

THE STRAUSS REACTION FOR THE DIAGNOSIS OF GLANDERS*

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Since Strauss¹ in 1886 discovered the fact that when material containing virulent *B. mallei* was inoculated into the peritoneal cavity of male guinea pigs scrotal lesions developed, the method which bears his name has been very generally used.

A positive reaction followed by typical organisms and a typical culture is unfailing evidence of the presence of *B. mallei* in the material inoculated, while the failure to obtain the reaction is not proof that the horse from which the specimen was taken has not glanders. Hill and Burr,² and also Frothingham,³ in 1901 called attention to the fact that frequently material from a horse which had glanders, as proved by autopsy, failed to give the reaction.

The bacteriologic laboratory of the Boston Board of Health makes free examination for any disease of a bacterial nature which is dangerous to public health. Our tests for glanders during the past four years have been respectively, 159, 208, 265 and 232, and of this number 301 or 34.4 per cent. were positive. The technic of examination is given in full that each step may be followed:

TECHNIC

Outfits consisting of a box containing two sterile swabs in a tube, together with a card with blanks to be filled out by the veterinarian, may be found at any of the culture stations, of which there are about fifty scattered over the city. After use, the outfits can be left at the culture station to be sent in by the regular station delivery, or, as is more frequently done, may be sent at once to the laboratory.

On receipt, about 3 to 5 c.c. of sterile water is added and the swabs are thoroughly soaked, then by rotation, together with pressure, against the side of the tube, most of the material is left in suspension: the swabs are now used to inoculate a potato, after which a smear is made to show the kind and number of organisms present. They are then put in a pail containing 5 per cent. phenol.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Strauss: Compt. rend. Acad. d. sc., 1889, 108, p. 530

2. Hill and Burr: Am. Pub. Health. Assn. Report, 1901, p. 439.

3. Frothingham: Jour. Med. Research, 1901, No. 2, vi, 331.

With the suspension, two male guinea-pigs (those weighing at least 500 gm. being preferable) are inoculated intraperitoneally; one with 1 c.c. and the other with 0.5 c.c., unless there are myriads of organisms, or if streptococci are present, when half as much is used.

The reason for using two pigs is twofold, for frequently, as will be shown later, one pig will be positive and the other negative; and on the other hand, one pig may die of peritonitis, while the other will live and give the reaction.

All pigs under test for glanders are kept for a month, if negative, before a final report is made to that effect, although a tentative report is made at the end of a week.

All pigs under observation are examined at least twice daily for the first week, and when any change is seen the fact is noted on the card.

As soon as possible after the pigs show the Strauss reaction, autopsy is made, and all notes entered on the animal cards, which are then filed away with the original one filled out by the veterinarian. At autopsy, a culture is made from each testicle which shows a lesion, and when but one shows the reaction, two are made from that one, and smears are also made for microscopic examination.

SUMMARY

In summing up the work on glanders, I have first taken all the positives for the past four years, ending January 31, 1910, and second, all cases during the past year.

A summary of the 301 positive cases shows the following dosage:

Cases showing organisms and receiving 1. and 0.5 c.c.....	258
Cases showing no organisms and receiving 1. and 0.5 c.c.....	18
Cases showing myriads of organisms or streptococci, receiving 0.5 and 0.25 c.c.....	25
	301

The result of the cultures made directly from the swabs, on receipt of the specimen, follows:

Culture negative in.....	132 cases
Culture positive in.....	32 cases
No notation on card.....	8 cases
No growth.....	3 cases
A mould present in.....	126 cases
Total.....	301 cases

It is noticeable that swab cultures from nasal cases are very apt to be overgrown by a mould.

The value of the swab culture is apparent from the fact that of the 32 cases in which the swabs gave a positive culture, 11 showed no lesion in the pigs by the third or fourth day, so were inoculated with a suspension from the surface of the potato, and in each instance there was a marked Strauss reaction on the second day following, and autopsy showed the characteristic lesions with typical organisms microscopically, and typical cultures were obtained from the lesions.

The location of the lesions in the 301 horses from which the specimens were taken is here shown:

Nasal.....	133 cases
Other than nasal.....	155 cases
Both nasal and lesion elsewhere.....	2 cases
Location of lesion not given.....	11 cases
Total.....	301 cases

Table showing cases, dosage and result of swab cultures by years:

	1906.	1907.	1908.	1909.	Total.
Cases positive.....	51	75	93	82	301
Receiving 1 and 0.5 c.c.....	51	73	88	71	283
0.5 and 0.25 c.c.....	0	2	5	11	18
Streptococci present.....	2	1	7	10	20
Swabs positive, pigs positive....	2	3	11	5	21
Swabs positive, pigs negative...	0	2	3	6	11
Suspicious bacilli present in examination of smears.....	10	17	32	18	77
Followed by positive culture....	1	2	3	2	8
Followed by negative culture....	3	10	12	7	32
Overgrown by mould.....	5	5	17	9	36
Showing no growth.....	1	0	0	0	1

	1906.	1907.	1908.	1909.	Total.
Swab cultures negative.....	21	37	38	36	132
Swab cultures positive.....	2	5	14	11	32
Mould.....	20	30	41	35	126
No growth.....	3	0	0	0	3
No notation on card.....	5	3	0	0	8

During the year ending January 31, 1910, 232 specimens were examined for glanders. Of this number, in 193 instances the inoculation consisted of 1 c.c. and 0.5 c.c., while in the remaining 39 but half as much was used.

The life of the individual pigs together with dosage is rather interesting. In the 193 cases in which the pigs received 1 c.c. and 0.5 c.c.:

Both lived in.....	141 instances
The 1 c.c. pig died in.....	14 instances
The 0.5 c.c. pig died in.....	8 instances
Both died in.....	30 instances

In the remaining 39 cases, the inoculation was 0.5 and 0.25 c.c., and of these,

Both pigs lived in.....	15 instances
0.5 c.c. pig died in.....	8 instances
0.25 c.c. pig died in.....	4 instances
Both died in.....	12 instances

From the above will be seen the value of inoculating more than one pig, as in a total of 232 cases, there were 34 instances in which one pig died while the other lived. This is even more striking when we come to consider the individual pigs among the positive cases, as in only 33 instances did both pigs give a positive reaction.

For convenience I call the pig getting the larger amount the 1 c.c. pig, and the other the 0.5 c.c., even in the cases where they received 0.5 and 0.25 c.c.

Both pigs positive in.....	33 instances
1 c.c. pig positive, 0.5 c.c. pig negative in.....	20 instances
1 c.c. pig positive, 0.5 c.c. pig dead in.....	7 instances
1 c.c. pig negative, 0.5 c.c. pig positive in.....	8 instances
1 c.c. pig dead, 0.5 c.c. pig positive in.....	6 instances
Swab positive, pigs negative in.....	6 instances
Only one pig used in.....	2 instances

From this it appears that had the 1 c.c. pig only been used, but 62 positives would have been obtained, an error of 24 per cent., while had the 0.5 c.c. pig alone been depended on, there would have resulted but 49 positives with an error of 40 per cent.

Had a swab not been made, 6 cases would have been missed, an error of 7.5 per cent.

While the final positive result would undoubtedly have been obtained by submitting other specimens, it will be readily seen that this would have only been accomplished after a delay which in many instances might have exposed a number of horses to infection. In any large series of tests for glanders, lesions other than the typical Strauss reaction will occur, and a number of these were spoken of in a paper by the author⁴ before the American Public Health Association in Winnipeg in 1908, and a number have since occurred.

The period from inoculation to development of lesions varies considerably. Thus, of the 1 c.c. pigs:

6 showed well developed lesions on 2nd day
23 showed well developed lesions on 3rd day
13 showed well developed lesions on 4th day
3 showed well developed lesions on 5th day

Three on the 6th, two on the 7th; one on each of the following: 8th, 10th, 17th, 22nd, 28th, 31st, 34th, and two on the 25th.

Of the 0.5 c.c. pigs:

6 showed lesions on 2nd day
11 showed lesions on 3rd day
11 showed lesions on 4th day
10 showed lesions on 5th day
1 showed lesions on 6th day
3 showed lesions on 7th day
2 showed lesions on 8th day

One each on the 9th, 18th, 23rd and 25th days, respectively.

Of the delayed cases, i.e., over 7 days, but two had a typical Strauss reaction, and in but two other cases was

4. Arms: Am. Jour. Pub. Hyg., August, 1909, xix, 570.

there any testicular involvement, and in each of these one testicle was converted into an abscess, there being but a thin wall, the interior being creamy pus, and *B. mallei* being recovered in pure culture.

There was a tumor at the inoculation site in 6 cases; twice an inguinal gland was involved; once a tumor was found in the omentum and once in the mesentery. In these freak cases none is considered positive without a culture and animal test with a typical Strauss reaction.

Three things are required for the diagnosis of glanders: typical Strauss reaction, typical organisms from the lesion, and typical cultures.

While there is a marked variation in the *B. mallei* on artificial media, the organisms direct from the lesions are characteristic, taking the stain (Loeffler's M:B) irregularly.

CONCLUSIONS

1. In the diagnosis of glanders by the Strauss method it is better to use more than one guinea-pig.

2. Before inoculating it is well to make a microscopic examination as a guide to dosage.

3. A culture from the swab often aids in the early diagnosis.

4. Pigs should be kept under observation for a month, and if a lesion of any kind is present, autopsy should be performed and cultures made.

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A NOTE ON THE TREATMENT OF PERNICIOUS ANEMIA

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UNDERLYING FACTS AND PRINCIPLES

Disturbances of the gastric function, varying from mild degrees of dyspepsia to complete achylia gastrica, almost invariably precede pernicious anemia and accompany it throughout. Whether the anemia (remaining undiscovered) is primary, the dyspepsia secondary, or *vice versa*, it is generally difficult to decide, and I am strongly inclined to the belief from a study of many case reports and from personal observations that gastro-intestinal disorders in the overwhelming majority of the cases usher in the disease. One could consequently imagine such cases of pernicious anemia to be the result either of chronic undernutrition or of a gastro-intestinal self-intoxication resulting from perverted digestive secretion, or both.

The fact that not every case of chronic undernutrition or of autointoxication develops into pernicious anemia calls for the inclusion of some specific factor or factors of hitherto unknown character, possibly of varying origin, of which the bothriocephalus toxemia, for instance, would be a prototype. Even without postulating the cooperation of any specific toxemia it is well to remember that any chronic malnutrition invariably produces secondary anemia; and I believe that any so-called secondary, or simple, anemia can ultimately develop into a so-called primary, or pernicious, anemia, in so far as any profound and persistent change in the quantitative composition of the blood can merge into a qualitative change in the blood composition, whenever, namely, the processes of regeneration become exhausted and degeneration from overtaxation sets in. Here a varying individual factor must be included, that is not a biologic constant and that is incalculable.

Since I have been paying attention to the gastric function in every case of profound anemia presenting the morphological characteristics of the pernicious type, I have observed either complete achylia gastrica or exceedingly low degrees of hypochlorhydria or complete achlorhydria. Several of the cases referred or seen in consultation were originally, in fact, interpreted as carcinoma of the stomach, owing to the lack of gastric acid, the dyspeptic disturbances and the profound anemia.

Here then is a definite point of attack in the treatment of this disease, viz., the restoration of nutritive equilibrium by artificial means, and, by implication, the prevention, so far as that is possible, of abnormal or excessive intestinal decomposition. The following method, after trials in various directions and the employment of different dietetic schemes, has proved itself to be most efficacious, leading, as will presently be shown, to a symptomatic (?) cure within a very short time in the three cases in which it has so far been consistently tried. When I record that all the other patients with pernicious anemia who have come under my observation in the last five years, who were not treated in this way, are dead or not at all improved, the justification of this preliminary note will be recognized.

INTERPRETATION OF RESULTS

In interpreting therapeutic results in any case of pernicious anemia the greatest conservatism should be observed in two directions; namely, first, one should be altogether sure that one is dealing with a true pernicious anemia and not with a severe degree of simple anemia; second, one should be quite certain that any apparent improvement is not merely one of the spontaneous remissions that occur in so characteristic a manner in this disease, and quite independently of any treatment that may have been instituted.

The blood analyses to be recorded below, indicating in particular the appearance of degenerative types of blood cells, identify the cases as pernicious anemia in the present accepted sense. That the improvement was not due merely to spontaneous remissions is manifested by the fact that an upward turn occurred almost immediately in each case, was steady and progressive until normal conditions were attained in an astonishingly short time, accompanied by a striking gain in weight. The normal weight and the improvement in the blood condition have been maintained until the present writing, all of the patients being in an excellent state of health both in regard to their subjective sensations and their working capacity, as well as in regard to their blood. The gastric achylia or hypochlorhydria remain unchanged, and it is necessary to pursue a régime continuously appropriate to this deficiency.

PLAN OF TREATMENT

The treatment consists in the incorporation of the maximal amount of proteins administered in conjunction with artificial digestants to facilitate their assimilation in the gastro-intestinal tract and their proper absorption from the bowel. The diet consists in an abundance of meat, fish, eggs, milk, buttermilk, administered by mouth in a finely divided form and fed in comparatively small quantities at frequent intervals; so that the patients instead of receiving three large meals a day receive five or six smaller feedings in the course of the twenty-four hours. The selection of the particular kind of albuminous food and its mode of preparation depend somewhat on individual peculiarities that must

be studied in each case; tastes and dislikes, cravings, idiosyncrasies. Meats are given in the form of broiled; roast and stewed preparations, never fried; or as meat juices, raw or slightly heated meat jellies, "peptones," gelatins; eggs, preferably raw or soft boiled, in large quantities each day, a dozen if possible; milk and milk preparations of all kinds *ad libitum*, raw, boiled, as cottage cheese, or in combination with eggs as eggnog, etc. The addition of a little alcohol each day to the diet has been found of value rather on account of the food value and the "sparing" properties of the latter than on account of any stomachic or generally stimulating effect. Fats are given moderately, because, when administered in combination with abundant albumens, they are apt to coat the albuminous particles in the stomach and prevent contact with the artificial digestive juices to be administered. Enough cereals, bread stuffs and vegetables, fruits, all administered in a soft and finely divided form, are allowed in addition, to make up a palatable meal.

Such an over-diet in which albuminous foods predominate is given both by mouth and by rectum; per rectum in the form of predigested clysmata, together with sodium bicarbonate, a little sodium chlorid and pancreas, with about 10 drops of laudanum (the latter to reduce expulsive peristalsis); by mouth, either in the same way (without laudanum), or, preferably by far, with very large quantities of hydrochloric acid. Here it is necessary to experiment a little. One must look on the stomach in these cases merely as a sac with no digestive function and generally with reduced propulsive powers, and one can either administer hydrochloric acid with the object of artificially creating conditions that resemble the normal gastric digestion, or can ignore the gastric digestion altogether and by administering pancreas and an alkali, so to say, transfer intestinal digestion backward into the stomach. The former plan, if it can be carried out, is by far the better, for the HCl, in addition to being a powerful digestant of albuminous pabulum, acts as a deterrent to the development of an abnormal gastro-intestinal flora. Pancreas-alkali, on the other hand, rather favors intestinal putrefaction as indicated by definite urinary and fecal phenomena. The acid plan, moreover, more closely approximates the normal. The pancreas plan permits of a more liberal feeding, especially of carbohydrates and fats, but I have found that the albumens count rather than the other food classes, so that in the particular class of cases under discussion nothing is gained by more food variety.

THE ACID PLAN

All of the patients reported below were treated on the acid plan. They were given 10 to 15 drops of strong hydrochloric acid fifteen minutes after each feeding, and again thirty minutes after each feeding. It is useless to administer the dilute acid. Much prejudice is encountered, especially on the part of the druggist who fills the prescription, to the administration of such large quantities of strong hydrochloric acid, but no harm ever accrues from its use, provided enough albuminous pabulum is given at the same time. In order to prevent mouth irritation the acid is best given in mucilage water; I have never seen any advantage from the simultaneous administration of pepsin, and consider it superfluous. Rectal clysmata of the character indicated above are given twice a day, or, if some rectal irritation results, only once a day. They are needed only in the beginning; that is, for a week or so. Occasionally a patient cannot tolerate them at all; in such a case it is best

to omit them, only, however, after a persistent trial and after every attempt has been made to overcome the prejudice commonly existing against this form of feeding.

HOSPITAL METHODS

That this treatment should be begun in a hospital is self-evident. In the first place, the patients should be kept completely at rest in bed; in the second place, a trained dietitian is needed to prepare the food properly until the patient or his attendants have been taught how to prepare and administer the diet; in the third place the patient's blood condition, body weight and digestive function should be under daily control; so that the treatment may be arranged to suit individual peculiarities that may be discovered. More than a three weeks' hospital sojourn is rarely needed. Improvement rarely becomes manifest before the tenth to the fifteenth day; but from then on, in the cases observed so far, the improvement is rapid. There is often some discomfort in the beginning, and the hospital is the place to enforce persistence in a somewhat strenuous and not altogether agreeable plan, especially as all of the patients have been very irritable and cranky in the beginning and quite difficult to manage. And one of the most gratifying results observed early in the course of the treatment has been a change in their mood and spirits and disposition for the better as soon as proper nutrition was again fairly under way.

THYROID, ARSENIC

In addition to the above treatment the patients should have some thyroid extract, in doses varying from three to five grains of the extract, three times a day, by mouth or with the clysmata by rectum. I am under the impression, enforced by certain special studies in this direction to be reported on in another place, that the administration of thyroid materially aids in the assimilation of proteins. In deference to a venerable plan all the patients also received in the beginning some arsenic, given in the form of sodium cacodylate dissolved in normal salt solution in the dose of one grain every day intramuscularly. Patients previously treated with arsenic alone never improved particularly, so that arsenic is considered merely an adjuvant, that certainly can do no harm and may possibly do some good along directions that we do not fully understand. Iron was not given as a drug; an overabundance of this element being incorporated in the meat juice ingested.

SYNOPSIS OF CASE REPORTS

CASE 1.—Mr. K. M. M., referred by Dr. C. H. Wallace, of St. Joseph, Mo. Age 54. History of gastro-intestinal disturbances extending over several years. Rapid loss of flesh during last year. Entered Michael Reese Hospital Nov. 2, 1908. Pale, anemic, slightly edematous skin. Slight albuminuria, a few hyaline and granular casts. Temperature on admission 99.4 F. Gastric analysis after Ewald test meal shows complete achylia gastrica without motor insufficiency. Blood Analysis: Hemoglobin 30 per cent., red b.c. 1,180,000, white b.c. 7,400. Differential Count: Neutrophils 67½ per cent., lymphocytes 30 per cent., large mononuclears 0, eosinophiles 1 per cent., transitionals 1.5 per cent. Red Cell Morphology: Poikilocytosis, megalocytes, microcytes, megaloblasts, microblasts, a few nucleated red cells, polychromatic degenerations. Weight on admission 132½ pounds.

Treatment instituted as above. Left hospital after three weeks, Nov. 23, weighing 137½ pounds, a gain of five pounds. Albumen and casts disappeared from urine. No edema. Color, strength and spirits greatly improved. Blood Analysis: Hemoglobin 65 per cent., red blood count 2,600,000. No megaloblasts or microblasts, a few nucleated red cells; poikilocytosis

still present but less marked. Treatment continued conscientiously at home with steady improvement in general strength, and resumption of daily duties.

The following was the report of the blood examination at the expiration of 10 weeks: Hemoglobin 85 per cent., red b.c. 4,400,000, white b.c. 8,400. No abnormal red cells. No poikilocytosis. Increase in weight. Report on Feb. 9, 1910: "I am as good as ever." Weight in May, 1910, 147½ pounds.

The patient still continues the use of large doses of hydrochloric acid and is instructed to persist in its use indefinitely.

CASE 2.—Mrs. K. L. C., Kansas City, Mo. Age 49. Seen first with Dr. Golden at Mercy Hospital and referred to Michael Reese Hospital Sept. 14, 1909. History of increasing weakness, severe digestive disorders and great loss of weight within a year. Patient in a state of profound prostration and unable to be out of bed. Exceedingly pale and slightly edematous skin. Slight albuminuria without casts. Temperature on admission 100.2 F.

Gastric analysis after Ewald test meal shows complete lack of hydrochloric acid, very slight peptic power and a little blood. No motor insufficiency. Blood Analysis: Hemoglobin 30 per cent., red b.c. 1,384,000, white b.c. 6,800. Differential Count: Neutrophils 72 per cent., lymphocytes 22 per cent., large mononuclears 2 per cent., eosinophils 2 per cent., transitionals 2 per cent. Red Cell Morphology: Poikilocytosis, many megalocytes and microcytes, a few megaloblasts, polychromatic degeneration types. The weight of the patient on admission was 199 pounds.

Treatment as described above. Discharged from hospital after four weeks, weighing 133½ pounds, i. e., a gain of 14½ pounds. Albumin disappeared from the urine. Skin color florid and no edemas. Almost normal strength. Blood Examination: Hemoglobin 60 per cent., red b.c. 3,400,000. No megalocytes or megaloblasts or polychromatophilia. Slight poikilocytosis. White count 9,100, differential normal. Referred to Dr. Logan Clendenen, of Kansas City, Mo. Report from the latter Oct. 26, 1909; Hemoglobin 85 per cent., red b.c. 3,500,000. On Dec. 27, 1909: Hemoglobin 100, red cells 4,400,000. No abnormal morphology. Weight on Oct. 26, 1909, 146 pounds. This weight has been maintained to date, as well as the normal blood condition.

The following report was received from the patient in May, 1910: "I feel splendid, sleep well and have a good appetite. However, I am still taking the hydrochloric acid and would like to have you tell me if I must take it during the remainder of my natural existence." This query was answered in the affirmative.

CASE 3.—Mr. J. B., referred by Dr. I. C. Smith, of Stockton, Ill. Age 46. Entered Michael Reese Hospital Sept. 1, 1909. History of loss of strength and rapid loss of weight for the last seventeen months. Patient exceedingly weak, very pale and slightly edematous. Slight albuminuria and numerous hyaline and a few blood casts. Severe gastric distress with loss of appetite and nausea. Temperature on admission 100.4 F.

Gastric Analysis: Total acidity 9. Free hydrochloric acid absent. Slight degree of motor insufficiency. Slight peptic power. A few red blood corpuscles were found in the stomach contents.

Blood Analysis: Hemoglobin 40 per cent., red b.c. 1,800,000, white b.c. 8,200. Differential count normal. Red Cell Morphology: Severe poikilocytosis, megaloblasts, microblasts megalocytes, nucleated reds and polychromatophilia. Weight on admission 135 pounds.

Treatment as above. Discharged from hospital Oct. 2, 1909, i. e., after about four weeks, weighing 155½ pounds, a gain of 22½ pounds. Blood Analysis: Hemoglobin 75 per cent., red b.c. 2,400,000. Poikilocytosis slight and no other abnormal red cells.

Treatment continued at home with progressive gain in weight and strength and resumption of farming duties. Patient reported on May 12, 1910, weighing 157 pounds, and with an altogether normal blood picture.

160 State Street.

FILARIASIS ON THE ISLAND OF GUAM

GEORGE B. CROW, M.D.

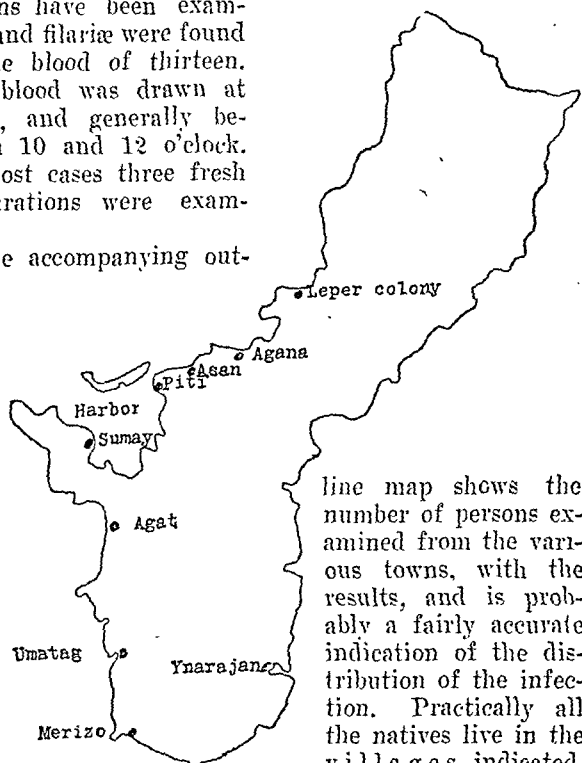
Assistant Surgeon, U. S. Navy

U. S. NAVAL STATION, GUAM

Two months ago I found filariæ in a stained smear of sedimented blood which had been drawn from one of the arm veins of a native at 10 a. m. Investigation soon showed that the filariæ were present in the skin capillaries only at night, except that occasionally one or two would be found in a specimen obtained as late as 8 a. m. and sometimes as early as 5 p. m. They were most numerous near midnight. In size, structure and movements they were like *Filaria nocturna*. Their presence in the blood drawn at 10 a. m. can be accounted for by the fact that a comparatively large quantity of blood was drawn (10 c.c) and from a large vein.

A systematic examination of natives from various parts of the island was begun at once. Up to date 244 persons have been examined and filariæ were found in the blood of thirteen. The blood was drawn at night, and generally between 10 and 12 o'clock. In most cases three fresh preparations were examined.

The accompanying out-



Map of Island of Guam

line map shows the number of persons examined from the various towns, with the results, and is probably a fairly accurate indication of the distribution of the infection. Practically all the natives live in the villages indicated. Most of them go out to their agricultural pursuits during the day, but return to the villages at night.

The island is 31 miles in length and has an average width of 7 miles. The population is about 12,000. Agaña has a population of 7,000; all the other places are small villages.

TABLE OF EXAMINATIONS

Name of village	No. of examinations	No. pos.	No. neg.
Leper Colony	30	0	30
Agaña	75	2	73
Asan	7	0	7
Piti	8	0	8
Sumay	15	0	15
Agat	21	0	21
Umatag	5	0	5
Merizo	6	0	6
Ynaranjan	58	11	47

One of those who gave a positive test at Ynaranjan is a Japanese who has been on the island for three years but lived in Agaña till one month before the examination. He came here directly from Japan and has never

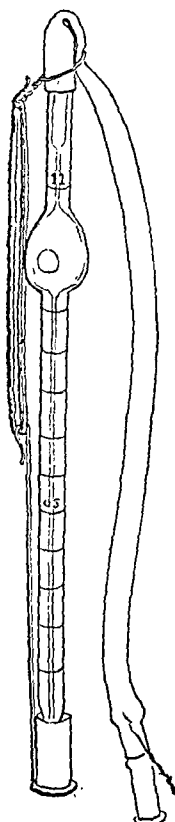
lived anywhere else. The other twelve patients are natives. The two in Agaña who gave positive tests are prisoners and are confined in the same building. One of these lived at Ynarajan before being sent to prison, three years ago. The other prisoner has been confined for two years and never lived outside of Agaña. It seems fairly certain that the first prisoner was the source of infection for the second, as the disease is apparently closely limited to the region of Ynarajan.

Filariasis has not been known to exist here. Its introduction must be fairly recent, as none of the thirteen patients as yet show any pathologic changes. How it came here is uncertain. Several months ago a diagnosis of elephantiasis was made on a Jamaica negro who lived on the island about twenty years, but this diagnosis was made from characteristic enlargement of feet and legs. Several blood examinations had been negative. This man had been confined in the leper colony for five years with the diagnosis of leprosy. The examinations from the colony were all negative, as were those from Agat. Some fifty or sixty years ago this island was frequently visited by natives from the Caroline group who had removed to Saipan. An intelligent old native priest here says that some of these visitors had great enlargement of the legs, which from his description was evidently elephantiasis. About 1870 some Carolinos (about 400) were brought here to cultivate cotton. They lived together along the beach near Agaña. The last of these were deported in 1901. No one remembers seeing any of these with any lesions which resembled elephantiasis.

TWO AIDS IN MAKING BLOOD COUNTS

STERLING BUNNELL, M.D.
SAN FRANCISCO

1. The practitioner is sometimes in need of an immediate white count when at the bedside and far from a microscope. Here is a quick, satisfactory and easy method by which it can be done in the patient's room and the result will be the same as if the counting were done through a regular microscope.



Stopper
for blood
pipette.

Procedure.—Draw the blood into a pipette, dilute with acetic acid and place a drop in the Zeiss counting chamber in the usual way. Now hold the cover slip on the counting chamber with a rubber band. The chamber can then be held up to the light and the corpuscles will not slide across the field. The counting is done with a small pocket hand lens. A sixty-cent lens will do, but there are more powerful lenses on the market that are hardly larger than a pea and are even better. A single frosted electric bulb gives the best light but a lamp or most any single light will do. The knack of seeing the corpuscles and lines well enough to count them lies in holding the counting chamber and lens absolutely steadily in focus. This is easily done by grasping both with both hands so that the same fingers are in contact with both the lens and the counting chamber, thus preventing any tremor between them. Hold to the light and count. Occasionally a counting chamber is found on which the lines are not sufficiently distinct. The acetic solution should be filtered. It is easy then to tell which blood corpuscles from platelets. The reds cannot be counted in this way.

2. If the blood is gathered in pipettes and carried to the laboratory to be counted, the rubber band which is generally used to hold the blood in the pipettes, is often perforated by the point of the pipette and it is found with dismay that the blood has leaked out. Here is a device which prevents leakage, is quick of application and will fit in the case (see accompanying illustration).

Description.—In the bottom of a BB cartridge, a disk of rubber is cemented. The cartridge fits over the end of the pipette and by its rubber false bottom keeps the blood from escaping. A straight wire with a hook at one end is soldered to the cartridge. Another piece of wire twisted into a ring and also with a hook on the end is slipped over the other end of the pipette. An ordinary rubber band connects the two hooked ends of the wires and pulls them toward each other.

Procedure.—To apply the device fill the pipette, bend the rubber tube back on it, slip the wire ring over the tube end and pull down the cartridge, stretching the rubber band till it slips over the pointed end of the pipette as in the diagram. There is a short lever arm to the wire with the ring, by virtue of which the ring squeezes the rubber tube tightly and prevents the escape of blood.

240 Stockton Street.

Therapeutics

THERAPEUTIC VALUE OF MEDICAL INSPECTION OF SCHOOL CHILDREN

It is not the object of this article to discuss the advisability of the various municipal governments assuming more parental care of children, but to show that regular inspection of school children, whether by physicians appointed by the local government, or by private physicians selected by the families, is of enormous value in preventing the development of disease and of abnormalities in children from seven to fourteen years of age. It requires no discussion to assert that if a community compels a child of school age to go to school, the same community must protect that child from harm while obeying the community's mandates. In other words, the light, temperature, ventilation, air space per individual, and height and character of the chairs and desks on the one hand should be as near perfect as possible, and on the other hand a child suffering from contagion of any kind or one who has been exposed to contagion and is therefore likely to become infected, should not be allowed to enter the school building. This primarily means that the building committee of every schoolhouse should have in its membership one or more medical men capable of passing on the requirements of a healthful building. Secondly this presupposes the inspection of school children to prevent the spread of contagious diseases, and the establishment of such rules by the boards of health as is necessary to control a contagious disease and prevent its causing infection of others.

It also seems to require but little discussion that, when the authorities decide that a child should be compelled to use his eyes and ears systematically, it should know that these organs are in perfect condition, or made as near perfect as possible. In other words, the eyes and ears of school children should be inspected by some one competent to decide at least approximately whether the eyes or ears need scientific examination.

This still leaves open to discussion the advisability of the examination of children by medical inspectors appointed by the authorities, perhaps by the board of health, perhaps by the board of education, or by a com-

bined committee from both boards, once or twice a year to determine the physical condition of each school child. This would mean briefly an examination of the bones for curvatures and other deformities that could be corrected orthopedically, to examine the heart and lungs, to examine the teeth for cavities that should be filled and for decayed roots that should be removed, to decide whether or not the child has adenoids or obstructed nares which should receive attention, and especially to decide as to the general physical condition of the child, viz., as to his health or debility.

One cannot see how there can be any question of the preventive value of such an examination. Whether such examination should be made hastily by a public inspector, or more carefully by the family physician is open to discussion, but, certainly, if we are to have a robust nation each child should be medically inspected regularly, early in the fall, before he starts on his school year. It may be ideal, but it is good sense that a child should not be received as a pupil until he brings a certificate of apparent health and ability to withstand the confinement of school hours for the succeeding year.

It is likely to be argued that the nation as a whole is a pretty well nation, and that such inspections have never been necessary. Such an argument is footless and without careful consideration of the facts of advanced civilization. Most diseases are as fatal (except tuberculosis and diphtheria) as they have ever been. It is not because diseases are not better and more scientifically therapeutically handled, but because the nervous and circulatory strength of the individuals is very much less than it used to be. The nervous strain and tension of our lives, and especially the lives of our children, has enormously increased, and with all the advance in medical science it is just as difficult to bring a patient through a serious illness now as it ever was, perhaps more difficult. If there was no more medical knowledge than there was a hundred years ago, and if patients were treated therapeutically as they were a hundred years ago, most patients would die. Therefore, although medical knowledge and science have advanced, the difficulties of caring for patients who are ill have increased. Hence every possible method of prevention of disease and of the development of a disability, and of the growth of a tendency to disease should be utilized.

In the crowded city schools the whole aim seems to be to push the child mentally and take but little notice of him physically. The crowded condition of the lower grades is the ever present stimulus to push a child up to the next grade and to push him mentally until he is able to take part in the work of that grade. Consequently, the age of graduates of each grade is growing younger, and a child that is kept back from sickness becomes ashamed to enter the grade of his mental knowledge. All this is economically a mistake. Every physician will testify to the difficulty encountered with the parents and the child when he urges the removal of a child from school because he or she is debilitated. The whole family urges that the child may be kept at school until the end of the term, lest he lose his class, and they suggest all sorts of subterfuges to get around the desire of the physician to keep the child in the fresh air, away from school and away from all school work. The results of these school methods and the foolish pride of families are shown by the large number of growing boys and girls just before and just after puberty who are far below par physically. A certain percentage of these children never regain their physical strength.

To offset the methods that tend to physical debility, school gymnasiums and athletics have become distinctive of this age. An enormous amount of good is done by such athletic work, but also a lot of individual harm is done by severe athletic work being undertaken without medical supervision or jurisdiction. A child physically not strong competes with its fellows who are strong, and the result is, sooner or later, a physical wreck. Also, the rapid growing child, especially the boy, competes with the boy who has grown slowly and sturdily. The circulation of the rapidly growing boy, the heart especially, has not grown as rapidly as the rest of the boy, and it is constantly working at a disadvantage to overcome the extra work required of it, and if severe athletic work is added to its requirements it is insufficient and soon shows injury. In the case of girls, they may not do as severe athletic work, but they take injudicious athletic exercise, such as bicycling and tennis at periods during their establishment of puberty which means future trouble and possibly life long harm. Also these girls, who by the nature of the conditions and the stimulation of the physiologic secretions which they have during the establishment of puberty, are nervous, irritable, and neurotic. To Nature's disturbances are added excessive school work and the stimulation of competitive work, with the addition of the home pride causing them to take up the study of accomplishments, music and dancing, all during the period when the girl should be resting both mentally and physically. Added to this is the ever increasing tendency of the young growing girls and boys (and it is the girls who receive the most harm) to have evening social gatherings and dances, even to late into the night; in fact everything in the amusement line at this early age, which leaves to the girl or boy of nineteen or twenty but little that is new in amusements. This causes many of our girls to be neurotic and perhaps neurasthenic for the rest of their lives, much to the discomfort and disturbance and unhappiness of their families.

General medical inspection and the advice that is simply a corollary of such medical inspection would soon educate the public to the better care of its children. The advice of the individual physician without the general consensus of opinion is not nearly of as much value as it would be if general inspection was required.

It would be time well spent for every physician who has not read the book on "Medical Inspection of Schools," by Dr. Luther H. Gulick and Mr. Leonard P. Ayres, to read it. This book is published by the New York Charities Publication Committee.

At a recent meeting of the New Haven Medical Association, Dr. J. W. Seaver, of New Haven, president of the Chautauqua School of Physical Education and former medical director of the Yale Gymnasium, opened a discussion on the subject of medical inspection in public schools as follows:

There are few, if any, topics of more interest to the person who considers the welfare of the state than the training of the children, and for no one purpose do our citizens pay so large a tax, and no part of the general tax is paid so willingly. Of course there are a few people still permitted to reside in this part of the earth who think that for the public, the city, the town, to undertake to provide mental or any other form of training for the children within its borders is unjustifiable, but this coterie of antiquated intellectual maidens need not be considered as their objection is merely based on a natural timidity and a suggestion of socialism has thrown them into hysterics. Their condition is not as bad as it seems.

It must be assumed that the public school is here to remain and it behooves us to make the institution as helpful to the state as it can be made and to give it the thought and direction that so large an outlay in any direction should demand. This being a form of government where the initiative and control rests in the hands of the people, that is in our hands, it remains for us to make reasonable demands of our officers who are in charge of public organizations and to work for the formulation of these demands. I conceive this to be our purpose at this meeting. We are to create and crystalize sentiment, acting as citizens and as specialists in the subject of health.

What is a public school? It is an institution designed to give mental training to the children of certain ages at the expense of the people. Everybody being taxed for the support of the schools and the schools being utilized only by those who have children of suitable age, there must be some conceded benefit to the public from this expenditure to warrant the taxation. This has been estimated in terms of increased efficiency in the new prospective citizen and in some countries it is considered that the youth owes the state a certain definite service as a return, in part, of the expense that has been incurred on his account.

But while the manifest purpose of the school is to give mental training it has been found that this is only one phase of a complicated subject; that mentality of high order is not secured by mental gymnastics alone, but that it is a structure that is erected on a purely physical basis; that mental processes are strongest and most normal when they are accompanied by appropriate physical activities, and that a proper mental training is possible only when the body is kept in certain hygienic fitness by its functional activity.

No less an authority on education than G. Stanley Hall has said that for every thought there is a muscular response and that thought without previous sensory impressions is impossible.

If, then, we are to start with the idea of giving the best mental training to the boys and girls of our city we must coordinate the work of the teacher in the school room with that of the person who is trained to understand the correct hygienic environment of the pupil and to discover whether or not the pupils' receptive areas for sensory impressions are in normal condition, or in as near an approximation to that standard as is possible.

They must also be trained to appreciate the fact that a large number of the diseases from which humanity suffers are contagious or infectious in character, and understand the ways in which these disastrous diseases are prevented or restricted to the fewest possible under the general conditions under which we must live.

Up to the present time the only people who are thus trained are the doctors, and there is a burden of responsibility laid on them by the very fact of this training that we have not met by adequate activity and interest in the school problems of this city and state.

In the Winchester factory, near by, every part of the material is examined and every part is inspected and tested so that the finished product is as near perfect as the skill of man can produce, and the result is reliable service. Suppose the same persistent attempt to turn out the best possible product from our schools for the service of the world were to be established as a working principle in their management. Would not the quality of the product soon reimburse the slightly increased outlay? Obviously the same rules of administration will accomplish the same ends in either place.

What, then, would be the result of expert supervision of the school children and their housing and management during the school period of their lives?

In the first place, we would not expect the impossible from the pupil but we would first examine the child to see if the various organs were in satisfactory condition for functioning according to the demands of the school life. Any error that could be corrected would be reported to the parent and its importance stated. If it could not be remedied the teacher would be made cognizant of the difficulty under which the child worked and would be able to meet his needs in a fuller and more sympathetic manner.

But suppose the parent is indifferent to the welfare of the child and ignores the advice. The parent is rarely indifferent but he is often suspicious and negligent. Often he is poor and helpless. It is all well enough to say to a parent, your child needs the care of an ophthalmologist, or a rhinologist, or a dermatologist, but that will not produce the fee that must be paid, nor will it drive the self-respecting parent to the dispensary. Something ought to be done, and it would seem to me the part of good economy in the manufacture of citizens to have these children cared for by the city when the parent does not meet the responsibility. To turn out a bright mechanic, or merchant, or policeman, is better than to turn out a poor day laborer without ambition or confidence in himself to struggle vainly for the necessities of life and finally have to fall back on the public for the care that his old age demands and that is given alike to the unfortunate and the incapable.

The work done by Dr. Cronin in New York when he examined the pupils in one of the truant schools shows the needs of this hygienic inspection, for over ninety per cent. of those children needed medical care. He took 87 of these children who were suffering from adenoids or enlarged tonsils, or both, and had them treated in one day, and only three of them lost time in school and many of them advanced in scholarship to the extent of three grades during the remainder of the school year. Those poor unfortunate children had been made to compete with children not so handicapped, and the result had been that they had become discouraged and played truant, for they did not like the feeling of continued disgrace. When they were set free they made ample return for the care that was given them, and as citizens, who can compare their probable worth with the forlorn, discouraged, incompetent group of mouth breathers that would have been the output of that school had nothing radical been done.

The eye is the tool by which mainly information is obtained in school, and to know that this implement is fitted for its work is of the highest importance. To expect a child with poor vision to do good work in school is like asking a mechanic to turn out well finished work with dull tools. We convict ourselves of stupidity when we expect it.

As to the guard against contagious diseases, I shall say almost nothing, for others will show what can be done and what has been done. Every disease that is detected in its incipency is a saving of many lives and a greater amount of money than has ever been paid to any inspector. To neglect this side of the school life is the old penny wise and pound foolish policy. It costs no more energy to march in front than to drag along in the rear.

While a number of the cities have furnished valuable statistics obtained by medical inspection in schools, the following results obtained by Dr. W. Matthew Kenna, of New Haven, have not before been announced, and are well worth presentation. Besides the results of his inspection of 400 school children in a new and perfectly equipped school building, Kenna introduces his statistics with some thoughts worthy of consideration:

The necessity for the medical inspection of school children in this country as yet has not been generally accepted. In but one state in the union has there been taken legislative action requiring all the pupils in the state to undergo medical inspection. That is Massachusetts.

Including the cities and towns of that state there are only about 70 places in the United States which at the present time officially recognize the desirability of medical inspection and which make provision for such inspection to take place.

As in every other matter of this kind, there are arguments for and against the institution. Those who are most conservative, realizing the always present danger of paternalism of any kind make protests which at best are of compromising nature. They believe either that the health of the school children should essentially be dependent upon the acumen and solicitude of the respective parents or others in intimate touch with the home life; or that at most the pupils should be inspected only so far as to protect them from the invasion of contagious disease.

Many more enthusiastic citizens, however, are of the opinion that not only should children specifically, while in attendance at school, have some kind of medical supervision, and not only should they be guarded from the dangers of contagious disease, but in addition that they should be looked after in the matter of constitutional defects—defects capable of retarding development, both physical and mental.

This idea has its application not alone in an expression of sympathy and interest in the child himself, not merely in the general protection to the community, but in an economic sense as well. For it is practical to consider (if we care to look at it from a mercenary standpoint) that much money is being wasted yearly upon the education of children who are retarded by physical conditions which if corrected would render them more amenable to the standard required.

We may take three view-points of the relation of the child to the matter in hand.

1. Has the child, while in attendance at school, any need of medical supervision?
2. The relation of the child to the community at large.
3. The consideration of the child as an individual.

Let us take up the first proposition. If we allow that the school is merely an incidental to the scholar's home, that his attendance at school is simply an excerpt from his daily life and that the parental surveillance is only temporarily obscured—if we look at the matter from this standpoint alone, then it is reasonable to assume that the care of the child's physical condition should devolve on the parents, and that there is no need for school medical inspection.

But it is easily recognized that there is a relation between school children and the community at large and that as carriers of contagious diseases they are a constant menace to that community.

Addressing ourselves to this, the second viewpoint, it is obvious that there is good reason for attempting to prevent as well as can be the dissemination of disease, both for the scholars' sake and for that of those with whom they may come in contact. And so if we grant the advantage to be gained from the mutual protection of the child and the community from contagious diseases it is not a far cry to the consideration of the third view-point, taking the child as an individual, and bearing in mind his possible constitutional physical defects.

How about the child himself? Is he entitled to supervision of a medical nature that may uncover bodily defects which otherwise might not be recognized and which might have a restraining effect on his fullest development? If we answer yes and accept this viewpoint then there is the fullest justification for a thorough and complete medical inspection in the school. Take, for instance, the matter of the common adenoids. It is undoubtedly true that many children suffering from these growths are never taken to a physician for treatment. This may be due to either ignorance or carelessness on the part of the parents. At any rate, there is lack of initiative on somebody's part and the children go through several years of their lives severely and unjustly handicapped.

Assuming that the tendency of such defects is to disappear as the child grows older, yet we must reflect how much better off he might have been had the lesion been eliminated. There is plenty of precedent for the adoption of a thorough medical inspection of our own schools. Several European countries as well as Japan have at the present time inspection which is national in its scope. There the inspection is rigid to an extreme degree, and there are many evidences of the benefit to be derived from the thorough examination of the school pupils. The very fact that these countries, like Germany, England, and Japan, are of the so-called military type throws out the hint that they are looking to the future with a practical as well as sentimental eye.

Medical inspection as related merely to the prevention of contagious and parasitic diseases has its value unquestionably. But the ideal inspection would be that which not only concerned itself with those diseases, but would also turn its investigating attention to the physical defects barring the child's school progress.

Here in New Haven, as you know, the medical inspection of schools relates more especially to the detection of contagious

and parasitic diseases and the elimination of vermin. That some good has resulted may be emphasized by the fact that since the inception of the inspection, impetigo, which was formerly very prevalent among the children, has been practically stamped out.

Medical inspection to be of greatest value must be more or less of a cooperative nature. It involves the working together of the visiting nurse, the teacher, the parent, the family physician and the medical inspector. Without such cooperation there is apt to be a break in the link and no ultimate results follow. Simply to find out that a child has some physical defect and to do nothing to alleviate it, accomplishes little. The essential point is to have treatment instituted, and this will not be effected unless some kind of pressure is brought to bear on the parents and their eyes opened to the necessity for such treatment. Under these conditions thorough medical inspection of the pupils will have been worth while.

Recently (spring of 1910) I made an examination of 400 school children taken indiscriminately. The results of the examination are shown in the accompanying table. An attempt was made to make three degrees of severity where lesions were apparent, and "A" denotes that a defect was present, but did not require treatment; "B" denotes that treatment was advisable; and "C" that treatment was imperative. The physical condition of the children was divided into three groups, viz., "good," "fair," and "poor." The examination followed was practically that which is required in the medical inspection of the pupils of the New York City schools.

TABLE OF RESULTS OF EXAMINATION OF SCHOOL CHILDREN

	Good.	Fair.	Poor.	Total.
Apparent physical condition.....	171	104	125	400
	A	B	C	Total.
Adenoids	19	35	2	56
Anemia	31	16	0	47
Cardiac disease.....	5	10	0	15
Defect of nasal breathing.....	23	4	0	27
Defect of palate.....	0	0	1	1
Defect of teeth.....	60	68	59	187
Skin: Contagious	0	0	1	1
Parasitic	0	2	5	7
Vermin	2	2	52	56
Hypertrophied tonsils.....	64	46	1	111
Orthopedic defect.....	9	3	0	12
Pulmonary disease or tuberculous condition.....	1	4	0	5
Enlarged glands.....	15	2	0	17
Vision:	8	63	11	82
.....	7	0	1	8
.....	8	1	0	9
Nervous diseases.....	13	7	1	21
Malnutrition	22	11	0	33
Defect of hearing.....	1	5	0	6
Backwardness	47	0	0	47

Formaldehyd Solution for Treatment of Appendix Stump.—Dr. A. Merrill Miller, Danville, Ill., writes: Whatever may be the ideal method of "treating the stump" of an appendix, well-informed and conscientious operators still entertain opinions widely divergent. Each group of men bases the treatment on their own, or perhaps a leading operator's, personal experience. The fact that equally good statistics, in use, are shown from the different methods, may make a suggestion in this matter appear superfluous. The septic muco-sa is usually cut away, treated with phenol and alcohol, or inverted. Perhaps a combination of all three methods is used. Because the use of phenol is attended by necrosis, it seems that little is to be gained from this practice. Then, there is the additional loss of time in the application of alcohol. To overcome the objection of a chemical necrosis in the base—an ideal place, it seems, for the proximate intestinal bacteria to multiply—I have adopted the practice of mopping the stump with 16 per cent. formaldehyd solution. This favors mummification of the tissues, destroys the mucous membrane, and may tend to limit small hemorrhages if the stump is not tied. Certainly a dry mummified stump is a less desirable place for bacterial growth than the raw, sloughing surface following the phenol application. Especially is this true if the stump is not inverted, or covered. The likelihood of adhesions from such tissues is less than by the use of any other method with which I am familiar. The amount of time—thirty seconds—consumed by this simple procedure is no reasonable objection to its use.

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THE IMPORTANCE OF THE TYPHOID-CARRIER

Evidence is accumulating that the share of the typhoid-carrier in disseminating infection has not been overestimated. The intensive study of typhoid fever by German investigators in the Rhine provinces has been frequently referred to in *THE JOURNAL* and has definitively established the fact that in the rural districts of Alsace-Lorraine and the Palatinate the major part is played by contact infection. Much more general conclusions may now, however, be drawn. It is safe to say that a large part, perhaps the largest part, of the "residual" or "prosodemic" typhoid observed in a community possessing a pure water-supply is to be attributed to contact infection. Even milk-borne epidemics are being traced in a surprisingly large number of cases to contamination of the milk by bacillus-carriers at the time of collection or in the course of distribution. The facility with which typhoid bacilli multiply in milk naturally renders this foodstuff a relatively common vehicle of disease, but the way contamination of the milk occurs is in many cases precisely similar to the mode of contamination of any other article of diet. There can, furthermore, be no doubt that a part of the danger lurking in open privies is due to their use by unrecognized carriers, using this term in the broad sense. Well-defined cases of typhoid are, of course, responsible for some scattering of infection of this character, but much also must be laid at the door of the "walking" patients, the healthy carriers and the obscure cases. To these are now to be added those individuals who, as shown by Conradi, Mayer and Drigalski, may be discharging typhoid bacilli in the stools or urine for as long as eight, eleven, or even twenty-five days before the malady has become clinically manifest. The recent discovery that children suffer not infrequently from a mild, ambulant, unrecognized form of typhoid¹ is also important in this connection. Several epidemics in western Germany have been traced to clinically unrecognized cases of this character. Altogether the living

distributors of typhoid bacilli make up a formidable array.

It does not seem worth while to discuss the singular stand taken by Delorme in his recent communication to the French Academy of Medicine.² No one cognizant of the evidence can maintain to-day that drinking-water is, in all places, the chief vehicle of typhoid or that contact infection is rare and exceptional. The success of the German campaign against rural typhoid, already referred to, is a demonstration of the efficacy of measures undertaken to prevent spread by contact. The number of cases in the infected district, which in 1904 was 3,487, was reduced in five years, by the measures against contacts and carriers, to 1,648. It is equally idle to dispute over the relative share at the present day of water and other sources of infection. Water, especially in this country and in France, is too commonly the means of communicating typhoid fever. That this is so should not lead us to overlook or to minimize other and equally well-known possibilities of communication.

Perhaps one reason why typhoid fever does not diminish more rapidly when cities substitute a pure water-supply for a polluted one is that in such cases there is a legacy of carriers handed on from the days when water-borne disease prevailed excessively. The carriers produced by years of infected water-supply do not disappear at once, but linger on and generate new foci long after the original trouble has been removed. Every city that continues to tolerate a polluted water-supply is not only suffering present injury, but also is storing up for itself future trouble, by accumulating a crop of carriers which may continue for long years to plague it.

One thing at least is plain, that the problem of residual or prosodemic typhoid is largely—perhaps mainly—the problem of the carrier. Difficult and often impossible to track to his lair, still more difficult when cornered to deal with fairly as an individual and rigorously as a public health danger, the carrier is coming to be more and more an object of serious concern in the fight against typhoid fever. A hopeful feature of the situation is that the effect of preventive measures is cumulative. Progress in the purification of water-supplies will in the long run decrease the number of carriers. The discovery and control of a single carrier, particularly in occupations such as the purveying of milk which involve special danger, may be the means of preventing the formation of many new carriers. It may be that the gradual elimination of the carrier is one reason for the steady diminution in the amount of typhoid fever observed during the last few decades, even in communities like Munich or The Hague, which have long been blessed with uncontaminated water. At all events, the carrier cannot be lost sight of in any attempt to control typhoid fever at its source.

1. See abstr. of article by Brückner, *The Journal*, July 16, 1910, p. 261.

2. See Vaillard: *Ann. d'hyg. pub.*, 1910, xiii, 5.

FARMERS' BULLETINS

One of the objections urged against the establishment of a national Department of Public Health has been that such work does not properly belong to the federal government. As a matter of fact, the national government is already carrying on exactly such work as would be developed by such a department, but it is being done under the authority of one or more of the existing departments. As has been already pointed out in the hearings before the house and senate committees, what is desired in the establishment of a specific health bureau or department of the national government is not so much the inauguration of any new work, as the extension, correlation and systematization of work already being done in various departments. This is well illustrated in a circular recently issued by the Division of Publications of the United States Department of Agriculture, giving a list of the "Farmers' Bulletins" issued by the department. In past years a large number of pamphlets containing valuable information by experts has been issued by the Department of Agriculture, being inaugurated originally to convey to the farmer the necessary information regarding animal and vegetable pests, etc. This work has since been expanded so as to include pamphlets on almost every subject that relates to the farmer's physical or material well-being. Whatever improves the health of the farmer and his family would also improve the health of the citizens who were not farmers; yet, as the Department of Agriculture has authority to issue bulletins to farmers but not to the citizens, these pamphlets are sent out as "Farmers' Bulletins." A glance at a few of the titles is interesting. No. 34, "Meats, Composition and Cooking;" No. 85, "Fish as Food;" No. 93, "Sugar as Food;" No. 121, "Beans, Peas and Other Legumes as Food;" No. 128, "Eggs and Their Uses as Food;" No. 182, "Poultry as Food;" No. 249, "Cereal and Breakfast Foods;" No. 375, "Care of Food in the Home;" No. 377, "Harmfulness of Headache Mixtures;" No. 391, "Economic Use of Meat in the Home," etc.

It would be difficult to show why the national government should be any more interested in the food of the farmer than in the food of any other citizen, or why pamphlets such as those cited above, if good for the farmer, are not good for all other citizens. It is also difficult to see how the publication and distribution of such pamphlets in any way interferes with "personal liberty" or "forces one to accept medical services which he does not desire." In fact, the effect of such publications would seem to be to diminish the need for medical services of any kind.

A number of the pamphlets are worth noting as showing the interest of the government in diseases of plants and animals. Some of these are: No. 28, "Weeds, and How to Kill Them;" No. 30, "Grape Disease on the Pacific Coast;" No. 82, "The Culture of Tobacco;" No. 91, "Potato Diseases and Treatment;" No. 99, "Insect

Enemies of Shade-Trees;" No. 110, "Rice-Culture in the United States;" No. 113, "The Apple, and How to Grow It;" No. 120, "Insects Affecting Tobacco;" No. 127, "Important Insecticides;" No. 152, "Scabies of Cattle;" No. 155, "How Insects Affect Health in Rural Districts;" No. 177, "Squab Raising;" No. 205, "Pig Management;" No. 379, "Hog Cholera."

The independence and personal freedom of the farmer does not seem to have been invaded by the publication and distribution of these pamphlets, neither has their preparation been controlled by an "agricultural trust." If similar publications on child culture instead of asparagus culture, or on infant management instead of pig management, were prepared by a properly organized health department, would the liberty of the people be endangered? Why should the government prepare and distribute pamphlets on "Grape Diseases on the Pacific Coast" and yet have no information for its citizens on water diseases in the Mississippi Valley? The series of farmers' bulletins prepared by the Department of Agriculture is most praiseworthy and valuable, but the government should abandon the subterfuge of authorizing such life-saving work under the name of "Farmers' Bulletins" because it has a Department of Agriculture and not a Department of Public Health, and should establish instead a department adequately equipped to advise all citizens regarding matters affecting their health and well-being.

EHRlich's NEW REMEDY FOR SYPHILIS

A new remedy for syphilis, recently announced by Ehrlich and Hata, under the somewhat mysterious name "606," seems to have been received in Continental medical circles with unwonted enthusiasm. This is shown by reports already published in our Berlin letter and the communications of our Budapest and Berlin correspondents in this issue and by the abstract in our Miscellany Department. The new product is the result of a long series of experiments carefully planned with the end in view of finding a remedy which will destroy spirochetes, particularly those of syphilis.

It is claimed to be an example of the complete destruction of the pathogenic agents of a disease by a medicinal product acting within the organism. It consists of a compound of arsenic allied to arsenilic acid and possessing the composition indicated by the name dioxo-diaminoarsenobenzol. Apparently it was selected out of a large number of similar compounds by experimental trials, and only after numerous successes on apes and other animals was tried on man. The results as described by Weichselmann,¹ Neisser,² and others, impress one as being little short of marvelous. The startling statement is made that spirochetes begin to disappear from chancres and condylomata in a few hours and

1. See page 617, this issue.

2. Berlin. klin. Wchnschr., July 4, 1910.

3. Deutsch. med. Wchnschr., June 30, 1910.

are completely gone in from twenty-four to forty-eight hours. Syphilitic lesions such as rupia, papules, ulcers, etc., we are told, heal with remarkable rapidity.

Considering the reputation and standing of the men who make the announcement, it seems possible that an agent more active and more powerful than mercury is about to be placed in the hands of the profession to be used against one of the most dreadful diseases from which humanity suffers. Considering its character it might be supposed that the remedy would be a dangerous one and yet it may not be. Arsenic is such a potent drug, however, that involuntarily the cautious think of the old saying: "Timeo Danaos et dona ferentes"—"I fear the Greeks even when they are bringing gifts."

The remedy is not yet on the market and probably will not be until the present uncertainties regarding dosage, mode of administration, etc., are cleared up by further investigation in hospitals. Meanwhile, it would be well to receive the various reports with due conservatism, bearing in mind the natural tendency to optimism on the part of those conducting such important investigations which seem so full of promise.

Current Comment

THE DRAMA OF SANITATION

A moving picture playlet illustrative of the dangers of impure milk is reported in preparation. Camera men have been snapping unhygienic farms to this end. The first scene represents the son of an old-fashioned, bacteria-despising farmer returning to the old homestead with his wife and little boy. The filthy cow-barns, the open pails of milk receptive to dust and flies are depicted with unsparing realism. The son, who has imbibed wholesome education in hygiene, protests passionately against the old order, but in vain, whereupon the young couple pack their trunks, leaving the old farmer in tears over the deserted baby-carriage of his grandson. The rural scene is then changed to an urban one. The formerly happy home of the old farmer's son is grievously distressed because of the baby's illness. The family doctor shakes his head and, pointing to the milk-bottle, indicates plainly the cause of the illness. The grief-stricken son writes to his father (letter flashed on the screen), who comes in haste; and finds, to his great anguish, that the bad milk has come from his own farm. Emotional climax! The play, however, ends happily; the farmer's barns are shown repainted and wonderfully refurbished, the cows washed, the dairymen in white suits presiding over now impeccably sanitary functions. The little patient? Evidently the family doctor has done something more than shake his head, for, miraculously restored to health, the little boy, held by his repentant grandparents, watches with interest the hygienic proceedings. Such a representation might amuse the highly intellectual, but it should certainly be of value in reaching that part of the community which would

take it seriously and which would be impressed by the scientific lessons embodied in it. Of well-proven value is a similar moving picture representation of "the filthy fly," which is being shown in our cities under the auspices of the American Civic Association.

FILTH AND TYPHOID

There is usually more than one aspect to a disputed question. This is true even of the celebrated Budd-Murchison typhoid controversy, which is so often declared to have ended in the complete overthrow of Murchison, horse, foot, and dragoons. No one, of course, believes to-day Murchison's hypothesis that the typhoid virus is generated spontaneously or *de novo* in decomposing organic matter, but it is clear that his observations on the connection between typhoid fever and filth were in themselves quite sound. The modern discovery of the existence of healthy typhoid bacillus-carriers, who have never had the disease themselves, explains why it is sometimes impossible to trace every case of typhoid to an immediately preexisting case. Since the hunting down of all carriers is practically impossible, it is necessary to deal with fecal accumulations in general as if they were definitely infectious. The open privy or earth-closet in city or country must be regarded always as potentially dangerous. We should not forget that accumulations of filth of any character tempt to further additions. It is a waste of time to try to prove filth innocent. If we assume it to be guilty from the outset, we are taking no unnecessary chances.

IT PAYS

We learn from a Denver correspondent that one of the vice-presidents of the "National League for Medical Freedom" was in that city recently organizing a "branch" of this latest enterprise of the "patent medicine" interests. This gentleman, who when not more profitably engaged runs a small country newspaper, is going about the country organizing forces—as though they were not already organized!—to fight the wicked "doctors' trust." Our correspondent says that while in Denver the "organizer" engaged an expensive suite in the most expensive hotel in the city! Verily the lines of this "trust-buster" have fallen in pleasant places.

RATTLESNAKE BITE

Every little while some one makes the statement that the rattlesnake bite is not fatal. This time it seems to have been announced from a medical society in Colorado, and a mud poultice is said to be a remedy sufficient to prevent evil effects. It is probable that the small rattlesnake of the western states, the so-called massasauga, is comparatively innocuous; that is, its bite is not necessarily fatal. But anyone who will make the assertion that the bite of one of the larger species is not serious enough to be dreaded goes against the experience of the medical profession, many of whom can give instances of fatalities thus caused, and that; too, in spite of treatment.

A NEW FORM OF HUMAN TRYPANOSOMIASIS

Dr. Carlos Chagas, a physician of Brazil, is reported to have discovered a new form of human trypanosomiasis. It is caused by a trypanosome which he has named *Schizotrypanum cruzi*. The parasite was discovered by him in the hind gut of a large biting bug, locally known as "barbeiro," which infests in large numbers the hovels of the poorer working class, remaining hidden during the day and issuing forth in the dark. This bug belongs to the *Hemiptera heteroptera*, family *Reduviidae*, genus *Conorrhinus*, is more than an inch in length and bites its human victim chiefly on the face. The course of the disease seems as yet imperfectly known. Children especially are attacked and the illness is characterized by extreme anemia, edema, general or partial enlargement of lymph nodes, thyroid and spleen, functional disturbances, especially of the nervous system, and frequent imbecility. The mortality appears to be great, death being often attributed to convulsions. The disease closely resembles ankylostomiasis, but is easily differentiated from this by an examination of the feces. The disease also differs from the African trypanosomiasis in that somnolence as a symptom is never present. A detailed report is contained in the sixteenth *Bulletin of the Sleeping-Sickness Bureau*.¹

Medical News

ILLINOIS

Infant Mortality at Springfield.—The monthly report of Dr. George T. Palmer, health officer at Springfield, shows that during the month of July there was an increase in the death rate of infants under two years of age of about 35 per cent.

New Hospitals.—As a first step toward the establishment of a much-needed hospital at Sterling, the city council recently appropriated \$500 to be used for hospital purposes. The cornerstone of the new Monmouth hospital was laid August 2. J. B. Brown delivered the address.

Personal.—Dr. William M. Johnson, Johnsonville, nestor of the medical profession of Wayne County, has been elected president of the county medical society. Dr. Johnson is 81 years old.—Dr. Will H. Perry has been appointed pension examining surgeon at Sterling to fill the vacancy caused by the death of Dr. Alexander C. Smith.

Advocates Hygienic Experiment Station.—At the meeting of the Summer School at Havana July 26, Dean E. J. Townsend of the University of Illinois, in an address on "Science and Public Service," suggested a plan for the establishment of an experiment station of sanitary sciences and preventive medicine, to work alongside of the agriculture and engineering experiment stations of Illinois. He declared also that education of the public as to the sources of danger is equally important. He called attention to Chicago as a good illustration of what a scientific and efficient leadership in sanitation can accomplish, pointing out that Chicago has now the lowest death rate of any American city of more than 350,000. His plan for an experiment station included the following features: That it should supplement the work done by the state and municipal boards of health; that a laboratory of physiologic chemistry should be maintained, in which questions of human nutrition could be studied; for the conduct of a bacteriologic laboratory; for the creation of a laboratory of sanitary science in which problems arising from water supplies, sewage disposal, etc., and their relations to public health should be investigated; for the establishment of a

department of medical research; not for teaching, but for inquiry into the cause and prevention as well as cure of such diseases as have not yielded to medical treatment.

Chicago

The Typhoid Campaign.—Dr. Leslie L. Lumsden, who is conducting the campaign against typhoid fever in the city, requests a meeting of physicians to discuss the situation. The medical societies of the city have no regular meetings during the summer and it is desired that special meetings be called.

The Weather and Mortality.—According to the bulletin of the health department July had a 6 per cent. higher death rate than the average of that month for the last ten years, and 23 per cent. higher than for July, 1909. The weather during July averaged 3.6 degrees above the normal of the month. It was the hottest July in nine years, and the average temperature was exceeded only once in thirty-nine years. While the death rate in infants was 42 during July this year, it was lower than the death rate in 1897 when it was 71 per 10,000 population, and lower than in 1901 when the death rate was 44, making the rate 45 per cent. lower than in 1897 and 5 per cent. lower than in 1901, in both of which years the temperature, though high, was not so high as in July of this year.

Plans Death to Flies.—John J. Davis, assistant state entomologist, in his experiments in the destruction of flies and fly larvæ, has found that a solution of iron sulphate is probably the best and cheapest agent. He advocates that experiments with this material in preventing the multiplication of flies should be conducted by the health authorities of Chicago in certain limited districts, and believes that a noticeable effect will be produced on the prevalence of intestinal diseases in the experimental area. In an experiment at Dunning a year ago, Dr. Pollock kept one ward screened from flies during the season. In that ward there was one case of intestinal trouble which lasted three days. In the next ward, which was not screened, there were seven cases in the same length of time and every one of these cases lasted from three to seven weeks.—A fly hatchery has been added to the city laboratory and Dr. John W. Viers is conducting experiments in the destruction of fly larvæ. Flies are being hatched in wire cages. It has been found that a phenol solution sprinkled on hatching grounds, on garbage and on manure will kill them.

Discuss Dumping Refuse in the Lake.—The question of the cooperation of the government in enforcing the law which prohibits dumping refuse in the lake within the eight-mile limit, recently referred to the chief engineer of the United States Army, has been answered in a communication from General Bixby, chief engineer, in which he says that the city of Chicago must mark the zone within which dumping is illegal by buoys and must provide inspectors to see that the law is enforced, as no money has been appropriated by Congress to enable the War Department to assist in the matter.

INDIANA

Personal.—Dr. Harrison Gabel, a physician at Centerville, was seriously wounded by being shot by a Civil War veteran, who is said to suffer from illusions.—Dr. William F. King, Columbia City, has been selected by the State Board of Health for special field duty in the study of epidemics or marked increase in any disease in any part of the state. On each mission, he will take exhibits prepared by the State Board, showing methods of combating the disease.—Dr. Clay A. Ball, Muncie, has been appointed deputy county health officer, to succeed Dr. Howard Drumm.—Dr. Jesse F. Davidson, Crawfordsville, supreme medical examiner of the Tribe of Ben-Hur, has been selected as assistant to succeed Dr. Royal H. Gerard, chief of the order. Dr. Alexander P. Fitch, formerly of Lebanon, has succeeded Dr. Davidson.—Dr. Adoniram J. Banker, Columbus, is critically ill.—Dr. Henry O. Bruggeman, Fort Wayne, who is now in Germany for study, has been elected president of the Anglo-American Medical Society in Berlin.—Dr. George H. Pendleton, physician at the Marion County Workhouse, has resigned, and Dr. Thomas Sullivan has been appointed to the position.—Dr. Samuel E. Smith, superintendent of the Insane Hospital at Richmond, has been appointed on a committee of the American Medical Association to welcome the International Prison Congress which meets in Washington, D. C., in October.—Dr. Hugh J.

1. Chagas' preliminary report was published in the *Brazil Medico*, May 1, 1910.

Downey, Middletown, N. Y., has been appointed resident physician at the Indiana Home Hospital, Terre Haute.

MARYLAND

New Hospital for Hagerstown.—Hagerstown is to have a hospital to cost \$60,000. It will be built under the direction of Dr. Henry M. Hurd, of Baltimore. It will be of brick and stone with concrete foundation.

Personal.—Dr. Richard S. Hill, Prince George's County, has been elected director of the Department of Farmers' Institutes of the Maryland Agricultural College and Experiment Station. Dr. Hill is a successful farmer and tobacco planter and has been special state tobacco agent for the last four years. He is also president of the Southern Maryland Agricultural Fair Association. The law requires that the incumbent of the office shall be a practical farmer.—Dr. Arlington G. Horine has been reelected mayor of Brunswick.—Dr. Ira J. McCurdy, health officer of Frederick, urges an incinerating and reducing plant for disposal of garbage and suggests a cemetery for animals.—Dr. Pedro de Figamiere, Zion, Cecil County, has been appointed to a government position in Alaska.—Dr. Thomas Z. Offutt, Granite, 80 years old, is recovering from a severe attack of pneumonia. He has practiced fifty years and was a surgeon in the Confederate Army.

Baltimore

Typhoid Fever.—Fifty cases of typhoid fever were reported for the week ending July 30, double the number of last year; 77 cases were reported for the week ending August 6, with four deaths.

Personal.—Dr. G. M. Linthicum, ex-president of the state society, has entered the Maryland General Hospital for treatment for supposed typhoid fever.—Dr. Summerfield B. Bond sailed for a trip to Norway and Sweden, July 30.—Dr. J. George Schmetzer has been motoring in England and Scotland.

Accidents During July.—During July twenty-three persons were injured by falling objects, as milk bottles, etc.; forty-six persons were bitten by dogs; thirty-three were burned; twenty-five were overcome by heat; ten were accidentally shot; four took poison by mistake. The total of accidents was four hundred and eight.

More Provision for Infectious Diseases.—Dr. James Bosley, Commissioner of Health, says the provisions for the treatment of infectious diseases at the public hospital (Sydenham) are entirely inadequate. The ordinance founding it provided for the treatment of diphtheria, measles, scarlet fever and chicken pox. But the money appropriated was sufficient only for one ward. That has been divided into two sections, in which cases of diphtheria and scarlet fever are treated. Four wards are needed and it is proposed to ask the board of estimates for \$60,000 to erect two new wards next year.

MINNESOTA

Free Dispensary for Duluth.—Efforts are being made at Duluth to provide a free dispensary, there being no such institution in the city at present.

No Appropriation for Tuberculosis.—The county commissioners at St. Paul are opposed to an appropriation of \$91,000 asked for the support of a tuberculosis ward at the City and County Hospital.

Personal.—Dr. Clara M. Hayden, Clarinda, Iowa, has been made women's physician at the state hospital to take the place of Dr. Olive Thorne, resigned.—Dr. Carl B. Teisberg, St. Paul, has been appointed assistant physician at the county hospital.—Dr. Gustavus T. Newman, New London, has been appointed superintendent of the new hospital at the Minnesota State Prison.—Dr. William H. Rowe, mayor of St. James, has been appointed by the governor surgeon-general of the state militia to succeed Dr. Alexander J. Stone.

Southern Minnesota Meeting.—The eighteenth annual meeting of the Southern Minnesota Medical Association was held at Winona August 4. Important action looking to consolidation of the Southern Minnesota Medical Association with the Minnesota Valley Medical Association was taken. Dr. William J. Mayo, among others, favored the plan of union and a committee was appointed to confer with a like committee from the other association on the matter. The following officers were elected: President, Dr. Theodore L. Hatch, Owatonna;

vice-presidents, Drs. Hugh F. McCaughey, Winona, and John E. Crewe, Rochester; and secretary-treasurer, Dr. William T. Adams, Elgin.

MISSOURI

Hospital Interns Resign.—Within the last month three of the interns at the City Hospital, St. Louis, have resigned on account of dissatisfaction with the food, their sleeping quarters and their personal treatment by the management of the hospital.

Circulating Medical Library.—The field covered by the library of the University of Missouri is to be extended over the state. On request the state librarian will furnish county medical societies with books for local circulating libraries. The library has recently added to the list of reference books several hundred books and periodicals on medicine.

New Hospital.—Mrs. Jane Chinn has donated \$100,000 for the erection and maintenance of a hospital at Webb City. The Jane Chinn Hospital Association has been incorporated, and a building committee has been organized with Dr. Charles E. McBride at its head. He is also president of the board of trustees. The building and equipment will cost \$40,000.

Changes in Washington University.—The 1910 catalogue of the Medical Department of Washington University shows that radical changes have been made in the faculty. Ten prominent St. Louis physicians connected with the school for many years have withdrawn. Dr. George Dock, who has recently come from Tulane University, New Orleans, to Washington University, has been made dean of the medical faculty. Dr. Horatio N. Spencer has resigned.

Personal.—Dr. William G. Rowe has resigned as county physician at Blue Springs.—Dr. Arthur A. Hobbs, Kansas City, has been appointed superintendent of the county hospital. He will also act as county physician.—Drs. Oscar H. Elbrecht and Willard Bartlett have been appointed surgeons of the consulting staff of the City Hospital, St. Louis.—Dr. William P. Patterson, Springfield, has been appointed chairman of the committee to arrange for medical examinations of the schools of St. Louis, Kansas City and Joplin.

Recommendations by Health Commissioner.—Dr. Walter S. Wheeler, health commissioner of Kansas City, in his annual report complains of physicians who fail to report reportable diseases and recommends that they be fined for violating the ordinance. He recommends an incineration plant for the disposal of the city garbage and urges more thorough milk inspection and a thorough campaign of education of the public in regard to tuberculosis. He also finds that there are five mentally defective children in every hundred of the 25,000 pupils enrolled in the city. He recommends that a separate school be provided for such defective children.

MONTANA

Nurses' Home.—A nurses' home to cost \$15,000 is in course of erection at the Montana Deaconess Hospital, Great Falls. Three nurses were graduated from the training school of the hospital in June.

Personal.—Dr. John T. Foley has been chosen assistant county health officer at Lewiston to act in the absence of Dr. Willard A. Long, who is in Europe.—Dr. Eugene G. Campana has been made city physician at Butte.—Dr. Francis M. Flinn has been appointed surgeon, with rank of captain, of the battalion of the national guard, composed of one company at Libby and two at Kalispell.—At the annual meeting of the Antituberculosis League, Dr. Sisson of Butte was elected secretary; Dr. Atwood, Helena, treasurer, and Dr. E. M. Hunter, Livingston, chairman of the executive committee.

NEW JERSEY

Personal.—Dr. D. W. Blake, Jr., was elected medical inspector by the Gloucester Board of Education.

Infant Paralysis at Burlington.—Six cases of infant paralysis are reported in Burlington. None of them has so far resulted fatally, but all of the victims are believed to be incurably crippled.

Shower Baths.—The board of works of Newark, following an order of the board of health to close swimming pools in the public baths because they are considered unsanitary, have

directed that shower baths be installed without further delay, and all public baths will be thus equipped.

Millville Fears Smallpox.—The State Board of Health held a meeting at Millville August 4 to take steps to check an epidemic said to threaten the town. For the last two months, it is declared, there has been a score of smallpox cases wrongly diagnosed as chickenpox. Charges that physicians have been lax will be probed by the state board. A dozen homes have been placed under quarantine and wholesale vaccination has been begun.

Advocates Public School Clinic.—Dr. George J. Holmes, medical supervisor of the Newark Public School, urges the establishment of a public school clinic. This, if centrally located, would enable public school physicians to keep in closer touch with cases coming under their care and would result in a saving of time. Special classes for defective children and for the blind, deaf and dumb were authorized by the Board of Education.

State Board of Health Report.—The report of the State Board of Health for July shows that the increase of deaths from infantile diarrhea during the month is larger than for any corresponding period during the past five years, which is in line with the report from other states, amounting to 345 deaths as compared with the next highest figures, 202, for 1908. Typhoid fever deaths for July numbered 37, the average per month for the previous twelve months being 25. Six hundred and fifty-three specimens of milk were examined by the state laboratory, 609 of which were found to be above standard and only 44 below.

Decision Regarding Sewage.—The supreme court, in an opinion handed down July 20, holds that the Borough of Garwood may empty the effluent of its sewage disposal plant into the Rahway River. This action of the Borough of Garwood was approved by the state board of health under the provision of the law which gives state boards the same powers as were formerly held by the state sewage commission. In holding that the law is constitutional Justice Parker says that "the effect of the legislation is to make the state board of health *ex officio* the state sewage commission, as far as the sewage disposal plant and these proceedings are concerned."

NEW YORK

Medical Library for Schenectady.—A medical library consisting of 1,000 volumes has been loaned by the State Medical Association library at Brooklyn, to the medical society at Schenectady. It will be located in the public library building.

State Exhibit.—The state health department and the State Charities Aid Association have again arranged a schedule for the large state tuberculosis exhibit which will go first to Saratoga in September.

Temporary Tuberculosis Hospital.—The board of county supervisors at Rochester has established a tent colony on the county farm in Brighton for the care of tuberculosis patients from the County Hospital, on recommendation of the Rochester Public Health Association.

New President. New York State Society.—By the death of Dr. Charles Jewett August 6, Dr. Charles Storer, vice-president, succeeds to the presidency of the Medical Society of the State of New York. He is a prominent practitioner of Amsterdam and physician to the City and St. Mary's Hospitals.

Personal.—Dr. Isham G. Harris of Poughkeepsie has been appointed superintendent of the new Mohansic State Hospital near Peekskill.—Dr. Edward H. Fiske, Brooklyn, was operated on at Oswego for appendicitis, while away on his summer vacation.—Dr. W. O. Smith has been made health officer at Falconer.

New Hospital for Children.—At a meeting of the fraternal organization committee, Dr. Montgomery E. Leary, supervising director of the Rochester Public Health Association, outlined his plan for establishing a children's hospital by all of the fraternal organizations of the city, and a committee was appointed to report later on the feasibility of the project.

New York City

Typhoid Fever.—For the week ending July 23 there were 59 cases of typhoid fever with 6 deaths; for the week ending July 30 there were 91 cases with 17 deaths.

Deadly Record for July.—During the month of July there were 18 persons killed and 153 injured on the streets of this city; of these 13 were children under 12 years of age. During the first six months of the year there were 93 killed and 522 injured.

To Enlarge Tuberculosis Clinic.—Plans have been filed for an addition to the tuberculosis clinic on the roof of the Vanderbilt Clinic at Amsterdam Avenue and Sixtieth Street. The addition will be a one-story structure. The laboratory of the clinic will also be enlarged at a cost of about \$6,000.

Personal.—Drs. J. Morgan Howe, Alexander Lambert and W. K. Draper have sailed for Europe.—Dr. F. M. Shook, Medical Corps, U. S. Navy, has been detailed to conduct lecture and laboratory courses on tropical medicine at the New York Post-Graduate Medical School during the months of August and September.

Death Rate Continues High.—The death rate for the week ending July 23 was 18.80 per 1,000 population, while the rate for the corresponding week of last year was 16.96. The death rate in institutions was again higher, there being 608 deaths compared with 485 for last year. Dr. Lederle has appointed a committee to investigate the reasons for the high death rate in both public and private institutions.

Pure Food Laws Made Ineffective.—The ineffectiveness of the pure food laws is being attributed to the failure of the courts to impose as severe penalties as are warranted. There is no lack of industry on the part of those charged with the enforcement of the law in securing conviction for the offenders but the fines imposed are in many cases so trivial as to have no effect in securing obedience to the laws. For instance, in a sale of soothing syrup, guaranteed to be perfectly harmless but found to contain morphin, \$10 was imposed; sales of four headache remedies, guaranteed harmless but found to contain acetanilid, resulted in fines of but \$15 each; a fine of only \$5 was imposed for selling a hair tonic and dye that was found to tend to the production of eczema. In a number of instances the court seems to have thought it has done its duty when it has ordered the destruction of the injurious articles.

New Plans to Care for Sick Children.—It has been decided by the health board that communicable diseases would have to be treated further down the bay than at the new hospital erected on Ellis Island by the federal government, and in consequence an offer has been made to the city through Congressmen Goldfogle and Bennett that the city rent this hospital from the government for sick babies of the tenements. The mayor approves of the idea and is consulting with the commissioners of health and charities on the subject.—Dr. Lederle has issued a half a million posters entitled "How to Keep Baby Well," which he hopes will have an effect in decreasing the high infant mortality of the present season. These posters contain the usual advice and admonitions and are printed in several languages.—The dock commissioner has also come out with a plan to help sick babies. He wishes the unused space in the city terminal buildings at South Ferry used as open air hospitals. Each building has a space 75 by 100 feet which would be available and could easily be fitted up if the city would appropriate the money.—The health department will post the following placard in every place where milk is sold in the greater city: "For infant feeding use certified or guaranteed milk, or bottled pasteurized milk. If you use either bottled milk or milk from cans, either raw or pasteurized, the milk should be brought to a boil before feeding to the babies."

Buffalo

Personal.—Dr. Charles G. Stockton has gone abroad.—Dr. S. Y. Howell spent two weeks in July at the seashore.—Dr. George Haller is taking a trip up the St. Lawrence.

Infantile Paralysis.—The Buffalo Academy of Medicine is making an investigation concerning cases of poliomyelitis in the vicinity. All physicians having cases to report are asked to notify either Dr. Irving M. Snow or Dr. Lesser Kaufman who will supply them with proper blanks.

Buffalo Selected.—In a cablegram from Health Commissioner Fronczak, who is attending the International Congress on School Hygiene at Paris, the announcement was made that Buffalo was selected as the next meeting place in 1913. The convention is held every three years. The competing cities were Rome, Cologne, Prague, Brussels and Budapest.

Contagious Disease Hospital.—Another session of the board of common council has come and gone without a solution of the question of site for the proposed hospital for contagious diseases. In the meantime the epidemics, especially of scarlet fever and now of pertussis, go merrily on. The sum of \$18,000 is to be used to make the present makeshift hospital at least habitable.

Action on Death of Dr. Wende.—Resolutions adopted by the common council on the death of Health Commissioner Ernest Wende have been forwarded to Mrs. Wende by City Clerk Bailliett. The resolutions are morocco bound and bear the signature of every member of the common council. It was also voted by the common council to name the proposed hospital for contagious diseases the Ernest Wende Memorial Hospital. The medical profession sincerely hopes that this hospital will be so located, so built and managed as to prove worthy of the name.

Concerning Erie County Hospital.—After a public hearing on the matter of the proposed Erie County Hospital the committee of the board of supervisors has by request of the sub-committee on public health of the Chamber of Commerce and Manufacturers Club consented to postpone the final letting of contracts for six weeks. The proposition of the Chamber of Commerce is to have the city build a municipal hospital on the Driving Park site, of 825 beds and to include the proposed hospital for contagious diseases. The citizens of Buffalo look favorably on the project.

Whooping Cough.—Following the exceedingly great number of cases of measles there has been added an epidemic of pertussis. The health department is sending out sanitary inspectors to watch all boats, play-grounds and parks and will cause the arrest of all parents who break quarantine in cases of pertussis. There were 200 cases of pertussis reported to the department of health in July. This is a strong indictment against those who are opposing a hospital for contagious diseases because many of these cases are but a sequel of the tremendous epidemic of measles. During the past week there were seven deaths reported from whooping cough.

NORTH CAROLINA

Health Bulletin.—The Asheville City Board of Health, beginning May, has issued a monthly bulletin.

Shaw University Hospital.—Ground has been broken for the erection of a \$20,000 hospital at Raleigh for clinical instruction of the students of the medical department of Shaw University.

Personal.—Dr. George A. Mebane, of Mebane, was a contestant for the democratic nomination for Congress in the Fifth North Carolina District, being defeated on the 438th ballot after a session of the convention lasting six days, by ex-Lieut.-Gov. C. M. Stedman, of Greensboro. Dr. Philip Norris, of the Rutherfordton Hospital, was recently presented with a silver loving cup as a token of appreciation by the Rutherfordton baseball team.

Osteopath as Expert Witness.—In the trial recently in the superior court at Asheville, Judge Justice presiding, an osteopath was admitted and qualified as an expert medical witness in a case for damages against the Southern Railway, brought by a man whose child was struck on the head five years ago by a falling transom inside a car. The testimony of two reputable physicians, one an ex-president of the State Medical Society, who had examined the child recently, was that the child was in excellent health, bright, intelligent for his years, and they were unable to find anything of pathologic character warranting the maintaining of the action. The osteopath testified that as a "result of the blow and the shock induced thereby a thickening of the brain and a resulting dislocation of several vertebrae had induced 'petit mal' with which the child is now affected, though not in a manifest form." The jury returned a verdict for \$2,000 damages for the plaintiff.

PENNSYLVANIA

Personal.—Dr. B. Franklin Royer, Harrisburg, has been appointed chief medical inspector of the state, vice Dr. Arthur B. Moulton, resigned. Dr. Royer has been associate chief medical inspector for the past eighteen months.

State Railroad Commission's Report.—The quarterly report of the State Railroad Commission for the three months end-

ing June 30, shows that 271 persons were killed and 2,287 were injured on the steam railroads of Pennsylvania. There were during the same period 63 fatalities on the street railroads and 1,119 persons were injured. Of the fatalities on the steam roads, 89 were to employees, 11 to passengers, 143 to trespassers and 28 to others. The trolley lines killed 6 employees, 5 passengers, 7 trespassers and 45 others.

City Nurses Reduce Infant Death Rate.—Successful results have followed the city's campaign against infant mortality. Comparing the results in the second, third, fourth and fifth wards, where special efforts are being made to save the lives of babies, while the mortality last week was 7 per cent. higher than in the corresponding week of last year, as compared with the total increase of 50 per cent. for all the wards of the city, the work of the special nurses would mean a saving of 713 lives if it could be extended to all the wards of the city. In the second and third wards the mortality was 9 per cent. and 16 per cent. respectively, compared with 60 per cent. for the whole city; in the fourth and fifth wards it was 14 and 22 per cent., respectively.

Philadelphia

New Amphitheater for Woman's College.—Work will shortly be started on the new amphitheater for the Woman's Medical College on North College Avenue. The building will be used for clinical work and will consist of a two-story brick structure, 35 by 40 feet. The estimated cost is \$17,500.

New Laboratory for the University.—Architects have completed plans for a new zoologic laboratory for the University of Pennsylvania. It is to be a three-story, fireproof building, occupying a lot 216 by 156 feet on Hamilton Walk, adjacent to the old biologic laboratory and its cost will be about \$300,000.

Hospital Opens a Milk Station.—On July 28 a modified milk station was opened at the Mt. Sinai Hospital, to be maintained throughout the year as part of the general plan inaugurated for the better care of babies in the tenement districts. The station will be open daily from 9 to 11 a. m. and from 5 to 6 p. m. Special nurses will be on hand to advise mothers.

Another Baby Station Opened.—Another baby-saving station was opened by the city August 3 on the Race Street recreation pier, where a day nursery and hospital will be conducted by the department of health and charities. One end of the pier is equipped as a hospital for babies and a rest room for mothers, and the other is fitted up with a sand pile and playthings for older children.

Personal.—The following physicians have sailed for Europe: Dr. D. Roman, on August 3; Drs. Walter C. Stillwell, Arthur Jackson Brewe and J. I. McGuigan on August 6. Dr. Willis F. Manges has been named as chief of the Roentgen ray laboratory of the Philadelphia General Hospital to succeed the late Dr. Mihran K. Kassabian whose death was caused by x-ray burns. Dr. Manges has had charge of the x-ray laboratory at the Jefferson Medical College and will continue in that position. Dr. Edward A. Leonard has been promoted to assistant physician at the Philadelphia General Hospital, made vacant by the resignation of Dr. Samuel Stern. Dr. Joseph F. Dunn has also been appointed assistant physician at the Philadelphia General Hospital. Dr. Joseph Price, who has been ill for six months from septic poisoning, has recovered and is again at work.

University Adds Course in Tropical Medicine.—Announcement was made August 5 that the University of Pennsylvania would add a series of courses in tropical medicine as an elective to undergraduates and as a special course to post-graduates. These courses will be under the charge of Dr. Allen J. Smith, dean of the medical department, and they will include instruction in medical climatology and geography; hygiene of ships and of the tropics; protozoology, anthropology, helminthology and general medical zoology; diseases of the eye, skin and surgical diseases common to the tropics; pathology of tropical diseases and systematic and clinical tropical medicine. The full course will continue fifteen weeks and will include ten units of study. The teaching force of the department will include Drs. A. C. Abbott, William Pepper, George E. de Schweinitz, William B. Hartzell and M. H. Jacobs.

Druggists' Association Acts Against Soothing Syrups.—At a meeting held in the College of Pharmacy on August 5, the

Retail Druggists' Association passed resolutions condemning so-called soothing syrups containing morphin and cocaine. Eleven hundred druggists, members of the association, will now refuse to sell syrups without a physician's order and are determined that any infringement of this rule shall be punishable by loss of membership in the society. Under the auspices of the state pharmaceutical board, an active campaign will be begun against the sale and manufacture of such pernicious drugs. The state legislature will be appealed to at its next session to eliminate from the statute books the present law which permits the sale of these drugs, providing that their contents are made clear on the labels of the bottles, and to insert in its place a clause which shall prohibit entirely the manufacture of the concoctions.

Campaign Against Tuberculous Meat.—Dr. A. H. Schreiber, chief meat and cattle inspector of the Health Department, announced on July 25 that warrants would be issued this week for the arrest of persons charged with selling tuberculous meats. Of the dealers selling meats without a license, fourteen have been arrested and were arraigned before Magistrate Beaton, July 25. Each was fined \$2.50 and costs and ordered to secure a license at once. Six slaughter houses in West Philadelphia have been closed by the Board of Health and fifty additional warrants issued for meat dealers because of the insanitary conditions which prevail and because they failed to meet the requirements of the law in slaughtering cattle, in the disposal of offal and in keeping the premises in clean condition. During one week since the inauguration of the campaign 1,500 pounds of beef and mutton were destroyed because it was unfit for food. Most of this was found on the counters of small dealers and was confiscated by the inspectors.

Women to Aid Phipps Institute Work.—Alexander M. Wilson, sociological director of Phipps Institute, announced August 3 the appointment of three women assistants who will work in the social service of the dispensaries. They are Miss Janice S. Read, of Worcester, Mass., who for three years was head resident in the Jewish Sisterhood Neighborhood House, Newark, N. J.; Miss Lillian G. Elbridge, a graduate of Vassar College and formerly of the Girls House of Refuge, Philadelphia, and Miss Edith Dudley, Poughkeepsie, N. Y., graduate of Wellesley and also a worker in the House of Refuge. Their work at the institute is to attempt to better the conditions under which the dispensary patients live. They will see that children in families where there is tuberculosis are protected against infection, and if already infected, that they are placed under proper treatment. The help of the health department, of landlords, employers, churches and charities will be enlisted to obtain good surroundings and sufficient diet for the patients that come under their charge.

RHODE ISLAND

Medicolegal Society Meeting.—The annual meeting of the Medicolegal Society of Rhode Island was held at Field's Point, July 22. Dr. Arthur H. Harrington, Howard, was elected president, and Dr. Carl R. Doten, Providence, secretary-treasurer.

Building for State Medical Society.—The Rhode Island Medical Society, at its last annual meeting, appropriated \$7,500 for a building for permanent headquarters of the society, and has purchased land at the corner of Hayes and Francis Streets, Providence, for the purpose.

State Health Officers Meet.—The health officers of the cities and towns of the state met at the State Hospital, Providence, July 28. Quarantine and water supplies were the chief topics of discussion. Dr. John H. Bennett of the State Board of Health, spoke of the subject of fumigation, stating that from his experience, he believed the best kind of fumigation was that which brought into use fresh air, sunlight, hot water and soap and plenty of elbow grease. A committee was appointed consisting of one health officer from each county to draw up an acceptable and effective quarantine bill for presentation to the next legislature.

Work of the State Sanatorium.—At the opening of the tuberculosis exhibit under the auspices of the Newport Association for the Relief and Prevention of Tuberculosis, Dr. Harry Lee Barnes, superintendent of the State Sanatorium, stated that the state sanatorium had saved lives with sufficient frequency to amply justify its establishment financially, even

though the humanitarian consideration be ignored, and that investigation had shown that the annual earnings of patients discharged from the institution during or before 1908, and who are free from active symptoms of tuberculosis, had amounted to over \$100,000.

WASHINGTON

State Medical Society.—The Washington State Medical Association met at Bellingham July 26, 27 and 28. One of the sessions of the convention was held on a steamer, cruising among the San Juan Islands. Hon. Horace E. Hadley, justice of the supreme court of Washington, addressed the convention on "The Joint Responsibilities of the Lawyer and the Doctor." The following officers were elected: President, Dr. Wilson R. Johnson, Spokane; president-elect, Dr. Leon L. Love, Tacoma; vice-presidents, Drs. Grant Calhoun, Seattle, and J. Earl Elsie, Pullman; secretary, Dr. Curtis H. Thompson, Seattle; treasurer, Dr. Park W. Willis, Seattle, and delegates to the American Medical Association, Drs. James R. Yocom, Tacoma, and George W. Libby, Spokane. The next meeting will be held in Spokane.

WISCONSIN

Personal.—Dr. Lewis F. Bennett, Beloit, has been elected president and Dr. John M. Bessel, Milwaukee, secretary of the State Board of Medical Examiners.—Dr. Frank E. Darling, registrar of vital statistics of the health department of Milwaukee, has resigned.

Nurses Call for Tuberculosis Instruction.—The Wisconsin State Association of Graduate Nurses, at a recent meeting, adopted resolutions calling on training schools to furnish adequate instruction in caring for tuberculosis patients in homes and in institutions. The action is approved by the Wisconsin Antituberculosis Association.

Milwaukee Health Conditions.—During the week ended July 23, Health Commissioner William C. Rucker, reported that there were 222 cases of typhoid fever, a decrease of 19 since July 16. Forty-nine new cases of typhoid were reported, five deaths were assigned to that disease and 63 recoveries. The work of gathering samples of water from the lake for the state hygienic laboratory has continued for the past six weeks. Water has been taken at intervals of from one mile to a distance of seven miles in the lake. Commissioner Rucker has been criticised for not making public the reports of the examination of water but the commissioner claims the blame is due to the fact that the reports are in the hands of the printer. The investigation conducted by George C. Whipple, an expert from the New York Sewerage Commission, with the assistance of the city engineering department has shown that there is no leak in the intake pipes near the shore. The reports of Commissioner Rucker and the reports of the analysis by the state hygienic laboratory are awaited by the public with much interest.—The recent test of ice-cream shows that manufacturers are complying with the law regarding the standard for ice-cream.—Health Commissioner Rucker has recommended that the department of Dr. George P. Barth, school physician, should be enlarged by providing visiting nurses to go to the homes and teach hygiene to the parents of the pupils.—The Seventh Street Isolation Hospital which has previously been condemned as unfit for hospital purposes, will be abandoned and the building in Kern Park will be used temporarily for isolating diphtheria, scarlet fever and measles.

TEXAS

New Wing at Insane Asylum.—A new wing at the Southwestern Insane Asylum at San Antonio was opened recently and 100 additional white patients have been admitted. The completion of the new wing makes room for 300 more patients.

Salaries of Health Officers.—The state board of health advocates better salaries and longer terms for the city health officers in the various cities of the state. The board believes that this should be conducive of more efficient work in health and sanitary matters.

GENERAL NEWS

Infant Mortality Association Meeting.—The first annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held in Baltimore Nov. 9 to 11. The sessions will embrace municipal, state and federal

prevention. Dr. William H. Welch will preside. The following are chairmen of committees: Medical prevention, Dr. L. Emmett Holt; educational prevention, Dr. Helen C. Putnam; philanthropic prevention, Dr. Hastings N. Hart. There will be a large exhibit, embracing milk, work, clothing, diet, hot-weather care and recognition of early conditions of disease. Membership is open to all who are interested in the baby. Miss Gertrude B. Knipp, medical and surgical faculty building, Baltimore, is executive secretary.

Cost of White Plague War.—According to the report issued by the National Association for the Study and Prevention of Tuberculosis the average cost of caring for tuberculous patients in thirty semi-charitable sanatoriums scattered throughout the United States is \$1.67 per day. The expense of maintaining the institutions in different parts of the country varies from 94 cents per capita to \$2.56, being more than twice as high in the west and southwest as in the east. The aggregate expenditure was \$1,364,000 and the receipts \$1,548,000, 70 per cent. of which came from public appropriations and private benefactions and the remainder from patients. It is estimated that there are 300,000 indigent consumptives in the United States who should be cared for by the state, which at the rate named above would cost \$50,000,000, though the economic loss from the incapacity of these afflicted persons is yearly \$200,000,000.

FOREIGN

Seven Physicians in Hungarian Parliament.—Four new medical members were recently elected, making a total of seven physicians at present in the Hungarian parliament.

Italian Malaria Journal.—The Italian Antimalarial League has founded a journal, *Malaria e Malattie Affini*, to be devoted to work and news bearing on malaria. The address of the new journal is via Farini 62, Rome.

Hydrophobia Statistics in Argentina.—According to the *Semana Medica* of June 23, during the twenty-four years since the Pasteur Institute at Buenos Aires was opened, more than 10,000 persons have taken a course of treatment, 73 have died, a total mortality of 0.67 per cent.

Laboratory for Research on the Brain.—A Moscow medical society, whose aim is to promote the experimental sciences, has turned over to Professor Pawlow an endowment of several thousand dollars to equip a laboratory for special research on the brain.

Pensions for Widows and Orphans of Basel Professors.—On the occasion of the four-hundred and fiftieth anniversary of the founding of the University of Basel, Switzerland, an endowment of \$70,000 was collected by the academic society for pensions for the widows and orphans of instructors at the university.

The Recklinghausen Endowment.—Professor von Recklinghausen retired in 1906 from the chair of anatomy at the University of Strasburg, after 35 years' incumbency, as mentioned in these columns at the time. His former pupils have been collecting subscriptions for an endowment to bear his name. The fund has now reached the sum of nearly \$4,000 (14,500 marks), and was recently presented to him to apply as he sees fit.

Honors to a Belgium Practitioner.—The fiftieth professional anniversary of Dr. Cartier was recently celebrated at Herstal near Liège, the entire population joining in the demonstration. The *Gazette méd. Belge* says that the town was gaily decorated, bands played, the chimes were rung and crowds thronged the city hall all day long, all in honor of Dr. Cartier's fête. The local authorities, industries, charities, lodges and the medical profession each paid tribute to his half-century of devoted service.

Memorial to Spanish Medical Officers.—A large memorial tablet, commemorative of the Spanish military physicians who lost their lives in the recent wars, was unveiled June 25 in the presence of a large gathering including the royal family and officials. The memorial is in the main hall of the military hospital and the *Siglo Medico* of June 25 gives the list of names of the physicians as inscribed on the tablet, with their rank and place and date of decease, from 1834 to 1895. After this date are the names of Dr. Molto, Noveleta, 1897, and Dr. Carraceja, 1898, corresponding to the date of our war with Spain, and Don Pascual, Peñon de la Gomera, 1909, a total of 24 names in all.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 30, 1910.

Annual Meeting of the British Medical Association

The seventy-eighth annual meeting of the British Medical Association was held in London July 22 to 29. It is now 15 years since the association met in the metropolis, which offers unusual advantages for the purpose, among which is an unusually large attendance, on this occasion amounting to 3,000. The function was in every way—scientific and social—most successful. Among the foreign guests were Prof. Koehler (Berne), Dr. Lucas Championnière and Dr. Wickham (Paris) and the following Americans: Dr. J. H. Bryan, Dr. Bulkley, Prof. Crile, Prof. Tait Mackenzie and Dr. Edsall. The president, Mr. Henry T. Butlin, who is also president of the Royal College of Surgeons, delivered a very interesting address on "The Evolution of the Association and Its Work." The growth of specialism has increased the number of "sections" of the association to 21, which now includes such new ones as "Medical Sociology" and "Radiology and Medical Electricity." Ample accommodation was furnished by the spacious class rooms of the University of London. The sections were well attended and many papers of great interest and importance were read and discussed. In the Section on Surgery, Mr. Arbuthnot Lane advocated the operative treatment of simple fractures. His name has long been identified with this method and his views have been previously published in THE JOURNAL. The discussion revealed considerable difference of opinion. Dr. Lucas Championnière of Paris could not agree with the utility or necessity of the method in all cases. Mr. Gilbert Barling found it difficult to reconcile the divergent views now held as to the treatment of fractures. Some claimed that by non-operative methods it was possible to obtain a high percentage of perfect results; others that after an ordinary fracture treated by splints there was a depreciation ranging from 30 to 100 per cent. He suggested that a committee be formed to investigate the matter. A resolution in favor of this was passed by the section.

Dr. Louis Wickham of Paris gave a demonstration, illustrated by lantern slides, on the treatment of cancer by radium. He showed the remarkable effects of radium in causing the regression and even disappearance of cancerous growths but deprecated the use of the word "cure" which should rarely be used. In the great majority of cases radium should be associated with surgery. If a grave cancer was present the radium therapist should first consult the surgeon so that the patient be not deprived of the prompt help of surgery. On the other hand, if the surgeon has a case in which it is difficult to operate he should use radium to prepare the ground and diminish the virulence of the growth. He should also prepare the ground for the action of radium, by perforations, incisions, and by partial extirpations diminish the thickness of the tissues which the rays have to traverse.

In the Section on Dermatology Sir Jonathan Hutchinson read a paper on "Paleogenesis as Illustrated in Certain Affections of the Skin." This is an entirely new subject which this wonderful octogenarian has attacked with an energy and originality which show no sign of age. Paleogenesis is a name which he has introduced to signify inheritance from remote ancestors in the evolution of man from the lowest types. The term atavism has been used to signify inheritance from near progenitors. Paleogenesis is therefore atavism in *cœclsis*.

For the ordinary visitor the most important and interesting feature of the meeting was the scientific exhibit which surpassed all previous exhibits in elaborateness. It contained over 3,000 specimens and was organized on a new plan, being divided into 19 sections, each under the care of an expert honorary curator, who selected a few subjects for illustration and collected from all available sources the most useful material. Thus the exhibit contained many series of exhibits rather than the usual miscellaneous items. Special attention was paid to methods, and as far as possible an ocular demonstration was offered of recent advances and of methods employed both in practice and in the laboratory for the diagnosis and treatment of disease. A novel feature was a section devoted to anesthetics in which many historical as well as modern anesthetic apparatus were collected. The number of microscopic specimens shown was unusually large, amounting to over 400. The section of protozoology was most interest-

ing; many recently discovered parasitic protozoa were shown in the blood of man and animals. In the Section on Cancer Research the ethnologic distribution of the disease and cancer in animals, spontaneous and transplanted, were illustrated. A very interesting series of portraits with accompanying microscopic sections showing the condition in cases of cancer before and after the use of radium, was exhibited by Dr. Dominici of Paris. Under the influence of the radium the growths disappeared and on microscopic examination the epithelial cells of the cancer were shown in process of regression and replacement by connective tissue.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 28, 1910.

Pyelotomy for Removal of Renal Calculi

On July 26, Dr. Bazy, surgeon of the hospitals of Paris, read an interesting paper before the Académie de Médecine, showing that the removal of most renal calculi may be effected by pyelotomy, that is, the incision of the kidney pelvis alone without injuring the parenchyma of the kidney, without disturbing the functioning of the organ, whatever it may be, and without altering its functional value. Bazy believes that it is unnecessary in the great majority of cases to make patients undergo exploratory operations, which may be badly sustained or dangerous, in order to ascertain the functional value of the kidney. Pyelotomy may be performed on any person capable of undergoing an operation of average duration and of minimum gravity. It is entirely suitable in cases in which the kidney containing the stones is the only functioning one and therefore must be conserved. These conditions were present in two of Bazy's patients, women aged 48 and 58, respectively, and worn out by suffering. Pyelotomy may be employed in cases in which the kidney pelvis is infected. The reunion of the pelvis by first intention does not appear to be hindered by this complication. It may be ascertained in advance by radiography whether one should employ pyelotomy or nephrotomy.

Enlargement of Scope of Scientific Information Bureau

For about seven years there has been at the Sorbonne a bureau of scientific information for foreign students. Up to the present this service has been maintained by the municipality of Paris. To improve this service, an association has been recently formed to furnish to all, whether French or foreign, but especially the latter, by correspondence or orally, all useful information in regard to the means of study in France. It will organize tours of study for foreigners in France, will aid in the formation and development of special courses in the universities for the use of foreign students, and will organize outside of France, an active propaganda in favor of French instruction, through brochures, prospectuses, newspaper articles, diplomatic agents and special correspondents, etc. It will also encourage relations between professors and students in French and foreign universities. While up to the present, the bureau of information has been almost exclusively Parisian, the field of the new organization, which is called Office national des Universités et grandes Ecoles françaises, will cover the universities in the departments. The government has voted \$2,400 (12,000 francs) in aid of this institution. [Address: Bureau des Renseignements Scientifiques, Sorbonne, Paris, France.]

Medals for Physicians Who Do Vaccination.

It is customary each year for the Académie de Médecine to award gold, silver-gilt, silver and bronze medals to physicians who do vaccination. These medals are transmitted to the minister of the interior and then sent to the prefects, who send them to the physicians thus honored. This year several medals did not arrive at their destination. Inquiry brought out the fact that certain prefects had confiscated the medals because the physicians to whom they had been awarded were not in agreement with the government. Indignant at this intrusion of politics into a matter with which it had no concern, the council of the Académie de Médecine brought the matter before the premier, M. Briand, who has energetically censured the culprits and has promised that the physicians who had been awarded medals shall very shortly receive them.

The Illegal Practice of Medicine by a Physician

According to French law, the physician who lends his countenance to a person practicing medicine without a diploma or who, without directing the treatment of the patients, uses his medical degree to lend sanction to the acts of such a person, becomes guilty of illegal practice of medicine. Recently the courts have decided that a physician who directs the treatment himself but who prescribes for many of the patients on the basis solely of replies to questions published broadcast, in the name of some institute or other, is thereby aiding the illegal practice of medicine.

The Period of Military Instruction to Students

Because of the inconvenience caused to students by the obligation of responding to the call to military instruction at the time of an examination, of a *concours* or of matriculation at a college, the minister of war has informed the generals commanding the army corps that it would be advisable for them to receive as favorably as possible the requests for delay made by students when the latter show that it would be impossible for them to absent themselves from their studies without serious detriment.

Election of Two Associates to the Academy of Medicine

The Académie de Médecine has elected as national associates Dr. P. Spillmann, professor of clinical medicine at the Nancy College of Medicine and Dr. Testut, professor of anatomy at the Lyons College of Medicine.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 20, 1910.

The Fossil Races of Men in Europe in the Glacial Period

Professor Klaatsch, the well-known Breslau anthropologist, delivered recently a very interesting address in the medical section of the Schlesische Gesellschaft für Vaterländische Kultur on the oldest races of men in Europe. By the recent discoveries the views regarding the relationship of man with the apes have been much modified. In many points the apes go beyond man. The long arms and strong canine teeth are phenomena of adaptation which developed after the path toward human development was closed to the ape. There must have been a common road from which the various paths of development separated. The hand with long thumb is the original form; even the four-footed animals have developed from quadrumanous types. It is also established by the newest discoveries that the variety of races is an ancient phenomenon. Probably a continent between Asia and Africa has sunk and in that way a separation into the African type (gorilla) and the Asiatic type (orangutang) arose. The prehistoric man discovered at Aurignac appears to represent a younger race than the Neandertal man and the man of Le Moustier. A complete skeleton, beautifully preserved with petrified bones, was unearthed at La Chapelle, France. It shows a complete burial with the face directed toward the south, and in addition some remarkable tools; also a shell ornament was found about the neck. The skeleton was that of a slender human being, but with primitive characteristics like those of the Australian race. The *Faustkeile* indicates the oldest period of the glacial drift, at any rate older than the discovery of Le Moustier and Aurignac. The lecturer regards the Neandertal man as of African type and the man of Aurignac as of Asiatic type.

Ehrlich's New Syphilis Remedy, "606" *

Good results with the new remedy have been reported from some hospitals during the last week. Of greater importance is an improvement in technic which Dr. Weichselmann, the director of the dermatologic department of the Virchow hospital in Berlin, has made and will soon publish. Of the two side-effects which have so far been observed after intramuscular injection of the remedy, namely, rise of temperature to 39 C. (102.2 F.) and the pains, the latter are more

* This subject is discussed editorially in this issue and also in the Budapest letter, page 610, and in the Miscellany Department, page 617.

disagreeable, as the fever lasted only a short time, while, after an intragluteal injection, severe neuralgic pains in the region of the sciatic were felt for several hours and required repeated injections of morphin. In some cases pains persisted in the sciatic region, of a light or medium severity, for several days. The technic of Wechselsmann is intended to avoid this disagreeable complication. The remedy "606" is dissolved in commercial soda lye by rubbing in a mortar; on addition of glacial acetic acid, drop by drop, a fine yellow precipitate falls which is suspended in some distilled water and the reaction of the liquid is made exactly neutral to litmus paper. The suspension is then slowly injected below the shoulder blade, the skin having been previously disinfected and painted with tincture of iodine. Sometimes a slight pain from the injection occurs for a few minutes and occasionally there is a slight swelling on the second or third day. No complaints of moment have occurred in from 60 to 70 cases and there has been no rise of temperature. The action of the remedy remains undiminished. This technic has the advantage that in case symptoms of arsenical poisoning manifest themselves, the site of the injection may be easily cleaned out.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, July 25, 1910.

An Acoustic Museum and Its Scientific Use

The royal and imperial Vienna Academy of Sciences (Akademie der Wissenschaften) the most renowned Austrian scientific corporation, has possessed for a few years a unique collection of phonograph records, which contain, besides the voices of remarkable persons, numerous records of ethnographic and scientific value. Some of the latest additions come from the voyage of Dr. Püch, who has taken great pains to obtain characteristic sayings and songs of the Bushmen. The nature of their guttural language can be examined by means of the records by magnifying the vibrations produced by any small part of the cylinder, and observing the succession of vibrations by means of a reflecting mirror. Thus it could be shown that, for instance, the vowels of the language of the Bushmen differ from those of the Papuans, and that the note of the frog, which very much resembles the "ah" of the human voice, is caused by a succession of definite short acoustic impulses, not like the human "ah." The examination of voices in different pathologic conditions of the throat and larynx has also been undertaken by means of the graphophone, and the results of 1,000 various investigations will be published shortly.

The Ultimate Fate of Hereditary Syphilitics Among the Better Classes

Dr. Hochsinger at a recent meeting of the Gesellschaft der Aerzte in Vienna, discussed the results of a series of investigations, extending over twenty-five years, into the ultimate fate of children whose parents had contracted syphilis before the children's birth. Only the better classes of the population were considered and of these only families in which the doctor had opportunity of constantly observing parents and children for a long period. The results are rather unexpected. Altogether, 139 families with 569 children were observed. The 139 women had 263 syphilitic infants born alive, 253 dead babies and 53 living non-syphilitic children. Of the 263 affected children born alive, 55 died before reaching the age of 4, so that 208 individuals were the subjects of prolonged observation. Only 25 per cent. of all of them remained alive and without any attacks, and only 14 per cent. of the children died within their first year of life. All other patients have shown during their life, symptoms of disease traceable directly to syphilis. Apart from manifestations on the skin and the mucous membranes, especially affections of the nervous system, together with moral insanity, were most frequent. The well-known fact that hereditary syphilis plays a prominent part in the etiology of these conditions is borne out very well. On the other side, it was shown that if hereditary syphilitic persons remain healthy up to the age of puberty, the expectation of a healthy future life is justified. Recurrences of syphilis have a very deleterious influence on the somatic resistance of the children; 79 children out of the 263 died during the observation; of course the majority of the deaths occurred within the first year. The most affected organs were the lungs and the alimentary canal.

According to the statistics of hospitals with their badly fed unhealthy applicants 70 per cent. of all syphilitic babies die in their first year. Dr. Hochsinger's observations deal with better families, where every possible care was available for the children. The most frequently attacked organs were in the new-born, the skin, the nose, then the viscera. The first-born child is generally more severely attacked than the second, this more than the third and so on. Also the number of recidives declines with the increasing number of children. Out of 123 first-born children, 93 (or 73 per cent.) had recurrences; out of 55 second-born babies, only 24 (or 45 per cent.) had recurrences, and out of 21 third children only 8 (or 38 per cent.) had recurrences. Where maternal lues was manifest, the children most often had developments of the disease, showing that the maternal manifest affection seriously influences the fate of the children. The characteristic feature of the late hereditary syphilis was always the gumma; infantilism and general maldevelopment were frequent. Chronic headache, migraine, is a very frequent concomitant, and very often a characteristic feature of hereditary syphilis. The absence of Hutchinson's symptom, as well as the fairly favorable results during the observations seem to show that an energetic long-continued antisyphilitic treatment may do much good for the unhappy offspring of a tainted family.

BUDAPEST LETTER

BUDAPEST, July 14, 1910.

Outbreak of Typhoid in Budapest

A serious outbreak of typhoid fever has occurred in Budapest, and although officially the nature of the disease has been kept secret, the actual facts became known very soon. Last week over 500 cases were reported, of which 200 are in public hospitals; the remainder have been left in family care. The epidemic was not due to the condition of the water, as has been proved satisfactorily. The majority of the cases were caused by contamination of the milk imported into the city from certain districts; some were traced to the consumption of contaminated fruit, butter and soft cheese. Articles of food are brought to the market in Budapest in a scandalous condition, the danger of which has been often pointed out. Recently out of 200 samples of food taken from as many retail sellers, not less than 60 were found to be unfit for consumption and therefore the lot had to be seized and destroyed. Typhoid has always been present in the city during summer, but the cases were few, far apart and could easily be controlled. At present the epidemic is undoubtedly local, imported from the suburbs, and could be speedily checked if only the market authorities could exert the necessary control over the importation and sale of milk and fruit. Lately, but too late, draconic measures have been instituted in regard to cleanliness.

Ehrlich's New Remedy for Syphilis *

Perhaps nowhere has Ehrlich's discovery caused greater agitation than in Hungary. The dailies devote whole pages to it, not sparing epithets or adjectives in praise. One of the dailies even sent two doctors to Frankfort, where Dr. Ehrlich is working, in order to study the new methods.

As a result of the publicity thus given to this new method, physicians are besieged by patients, imploring to be cured. But, alas! Dr. Ehrlich has not yet brought his remedy to that stage of perfection which allows of its administration without danger, so that he feels himself obliged to confine its use to hospitals, where the patient is under uninterrupted observation, to the present exclusion of private practitioners. The most important Hungarian hospitals have already sent their representatives (some to Frankfort to Dr. Ehrlich and some to Berlin to Dr. Wechselsmann) to study the manner of conducting the treatment in the hospitals there.

As I was one of those who called on Dr. Ehrlich, I am able to relate personal experiences regarding this discovery. When I was admitted to Prof. Ehrlich's laboratory I was surprised to see three men in a little cabinet writing at Ehrlich's dictation. I questioned him as to the reason of this. "You

*This subject is discussed editorially in this issue and also in the Berlin letter, page 609, and in the Miscellany Department, page 617.

see," said he, "that although I feel very much flattered by the attention and confidence displayed in me by my brother physicians, yet I cannot reply to all the demands they make on me. I myself am not a practitioner, but the director of the *Königliches Institut für experimentelle Therapie* (Royal Institute for Experimental Therapeutics). I am investigating in my laboratory and have placed the experimenting and proving of this remedy into the capable hands of Dr. Wechselsmann at the Virchow Hospital in Berlin, where he is studying cases under treatment. However, I wish if possible to answer all letters and telegrams (and they come by the basketful), and that is what you now see me attempting to do. There are some letters here that have had to wait for three or four weeks.

"As to the method of discovery, it has not been like so many other new discoveries, a matter of chance, but I have been working at it for some time past, knowing as I do how many are suffering under the fear and apprehension of this terrible disease, and that if I could succeed in alleviating this I should feel satisfied and consider that I had accomplished a beneficial work. As my friend, Dr. Wechselsmann, says, referring to the treatment, one injection arrests the disease to as great an extent as more than a year's treatment by any other method.

"The most important point about this remedy is that one injection utterly destroys all the spirochetes, but is harmless to the animal tissues. In the course of my investigations I have made hundreds of mixtures with which to accomplish this, but only after several years of experiments did I, in company with Dr. Hata, in November last, discover the present medicine 'dimethyldioxiarsenobensoldichlorhydrat' and the cure 'sterilisatio magna,' so called because of its 'great effect of killing all parasites at once. In March last, being so satisfied with the results of my trials on animals, I decided to apply the medicine to human beings, but having no hospital under my control, I asked my friend, Dr. Wechselsmann, to undertake the conduct of the experiments, and he, I am sure, will be very pleased to show you the method and the results if you go to Berlin."

I went to Berlin to the great Virchow Hospital, where Professor Wechselsmann has charge of the venereal section. Wechselsmann's section was located by the innumerable eyeglassed gentlemen who were standing before the door of a large building. It was not difficult to find out that these doctors were waiting for Wechselsmann. It was then 9:40 a. m. Exactly at 10 o'clock Professor Wechselsmann came. He is a man about 50, who displays all the external features of a learned man. He was glad to see, he said to me, after my introduction, that the Hungarian doctors are so keen in appreciating the epoch-making importance of Ehrlich's new remedy. "The lay press," he said, "is in great measure responsible for this extraordinary interest. You are the thirteenth Hungarian to come to see our work here." Then he showed us his wards, which are the model of a modern hospital. Large spacious halls of spotless cleanliness, glazed, tiled, cornerless walls, electric ventilation, good light; in short it is the acme of hygiene we see here. He led us into a separate compartment where about 12 patients were located, all treated with Ehrlich's remedy. He showed us one case, which was admitted 6 days previously, with a fresh syphilis, papules, swollen glands and mucous plaques in the throat. All these symptoms had disappeared after one injection of the Ehrlich remedy, which was administered four days before. And this is not an exceptional case, he said, because all patients who were treated with amido-arseno-benzol, were just as favorably influenced by this remedy. It is true that some of the patients complained of great pains, and in some exceptional cases even urticaria-like rashes made their appearance, and even for three or four hours after the injection fever may occur; however the patients do not mind such little inconveniences considering the great advantage they derive from the injection. "As yet," he said, "I have tried the remedy, almost without exception, in fresh cases, so that for the time being I am unable to say anything definite about old neglected cases. However, I heard from a friend of mine, who has charge of over 200 syphilis cases, that he has had good results with tertiary lues cases, too. At the Neppspringe Lunatic Asylum, for patients whose nervous break-down could be traced back to a syphilitic origin, Ehrlich's remedy was

applied with the most surprising results." He finished his very interesting lecture and demonstrations with the assertion that he would not give Ehrlich's remedy into the hands of private practitioners until 3,000 cases were reported on, which is probably nearly at hand, because nearly 2,500 phials were already distributed, and Ehrlich does not give his remedy to anybody without an agreement in writing that the physician will send him a report of the results. "Mention me to your science-loving countrymen," he said, in finishing his interesting discourse.

Dissatisfaction with a University Appointment

Considerable dissatisfaction has been manifested in the medical and lay press, as well as by the public, toward the appointment of L. Nekam to the chair of dermatology in the University of Budapest on the recommendation of Count Fiehy, minister of public instruction, whose appointment has been sanctioned by Emperor Francis Joseph. The committee of the medical faculty had proposed the names of Drs. Török and Marschalko, to the general board whose duty it was to investigate and report on the applicants. This body entrusted this duty to a theologian, who ignored the proponents of the medical faculty and appointed Dr. Nekam, with the resulting dissatisfaction.

Creation of Five New Universities

At the present time there are only two universities in Hungary, those at Budapest and Kolozsvár. The former is so crowded with students that proper attention cannot be given them. The authorities have been endeavoring for many years to have different cities assist in establishing other universities, but the matter has never taken practical shape. It is the intention of the present legislative body to establish five universities at once in different parts of the country, two of which shall have medical faculties. These will be built in Szeged and Kassa, two flourishing towns in opposite corners of Hungary, lying outside the circles of the two existing universities. It is hoped that this will relieve the crowded condition of the University at Budapest, which has 1,600 medical students, with accommodations for only 1,200. The two new universities having medical departments are expected to be ready by September 1, 1912.

Yaws and Syphilis.—Henry J. Nichols, Medical Corps U. S. Army (*Proc. N. Y. Path. Soc.*, February and March, 1910), states that in 1905 Castellani while examining smears from a case of yaws discovered a spirochete which when afterward stained with Giemsa stain seemed to be identical morphologically with the *Spirochæta pallida*, and this opinion was confirmed by Schaudinn. Castellani named this *Spirochæta pertenue* or *pallidula*. Castellani inoculated three monkeys, and in one after sixteen days, at the site of inoculation, a yaw-like lesion developed which repeatedly showed *Spirochæta pertenue*. Although Castellani and Schaudinn found no morphologic difference between the *pertenue* and the *pallida*, Prowazek believes that there are certain differences between them. The *pertenue* is slightly thicker and less rigid; the twists are not so regular; there is more of a tendency for the ends to curl up; the forms with longitudinal divisions are more numerous. After careful study and experimentation the evidence against the identity of the disease with syphilis seems to be as follows: 1. Geographical distribution; yaws is confined to certain tropical regions; it exists where there is no syphilis, and has also died out while syphilis remained. 2. Yaws and syphilis may occur in the same person, and there is no immunity from one disease to the other. 3. The lesions in yaws are always the same, not pleomorphic. 4. The lesions of yaws affect principally the epithelial, not the connective tissue. 5. Yaws is principally a disease of children but is neither hereditary nor congenital. 6. The lesions are extragenital and sexual transmission is practically unknown. 7. Constitutional symptoms are not the rule in yaws. 8. The treponemas may differ morphologically.

Marriages

HUGH O. JONES, M.D., Chicago, to Miss Nettie Perry, of Oshkosh, Wis., July 27.

GEORGE GILL, M.D., to Miss Adele Hieber Bassett, both of Elyria, Ohio, July 25.

JOHN BUSHROD SCHWATKA, M.D., to Miss Nina M. Duvall, both of Baltimore, July 30.

DANIEL E. RICARDO, M.D., Chicago, to Miss Justine Theresa Friend, of Cincinnati, August 1.

MORRIS I. BAYLIN, M.D., Baltimore, to Miss Pauline Shulman, of New York City, July 17.

FRANK BLAIR LOVELL, M.D., Gibson City, Ill., to Miss Helen Lewis Brewster, of Wheaton, Ill., June 30.

WALTER ANDREW BLOEDORN, M.D., U. S. Navy, to Miss May H. Howard, of Washington, D. C., July 25.

WILLIAM SCOTT WADSWORTH, M.D., Philadelphia, to Miss Frances Elizabeth Diel, of Syracuse, N. Y., August 4.

Deaths

Charles Jewett, M.D. College of Physicians and Surgeons, New York City, 1871; a member of the American Medical Association; American Academy of Medicine; American Gynecological Society; International Periodical Congress of Obstetricians and Gynecologists, and British Gynecological Society; president of the Medical Society of the State of New York; gynecologist and obstetrician to the Long Island College Hospital; consulting obstetrician to Kings County Hospital; consulting surgeon to St. Christopher's Hospital; consulting gynecologist to Bushwick, Swedish and German Hospitals and Bushwick and Eastern District Dispensaries, Brooklyn; professor of obstetrics and gynecology in Long Island College Hospital; died at his home in Brooklyn, August 5, of apoplexy, aged 71. Dr. Jewett was at the time of his death president of the Medical Society of the State of New York and of the Kings County Medical Society and had been one of the most prominent practitioners of Brooklyn for many years. Although 71 years of age he was in active practice up until a few days ago.

James Albert Hawke, M.D. University of Pennsylvania, Department of Medicine, 1863; a veteran of the Civil War; who entered the U. S. Navy June 24, 1867, as assistant surgeon; was promoted to the grade of passed assistant surgeon on February 26, 1873; was promoted to surgeon, May 1, 1879; to medical inspector in 1895, and to medical director Sept. 24, 1899, after fourteen years' sea service and eighteen years and two months' land service, and was placed on the retired list with rank of rear admiral, on reaching the age limit of 62 years, on January 31, 1903; but was retained on active duty until April 1, 1903; senior medical officer of the navy yard, New York, during the Spanish-American War; died at the United States Naval Medical School Hospital, Washington, D. C., July 25, aged 69.

Ira Brown, M.D. University of Michigan, Department of Medicine and Surgery, 1858; Vanderbilt University, Medical Department, Nashville, 1876; a member of the Illinois State Medical Society; a veteran of the Civil War; a member of the board of pension examining surgeons at Watseka; died at his home in Milford, Ill., July 24, from heart disease, aged 78.

Luther A. Grizzard, M.D. Medical Department of the University of Nashville, Tenn., 1872; Medical Department of the Tulane University of Louisiana, New Orleans, 1876; a member of the American Medical Association; for a number of years surgeon for the Texas and Pacific Railway Company at Abilene, Texas; died in a sanitarium in Fort Worth, July 27, aged 60.

James Young Crawford, M.D. University of Tennessee, Medical Department, Nashville, 1879; a member of the Tennessee State Medical Association; a Confederate veteran; president of the faculty and professor of clinical dentistry in the University of Tennessee Dental Department; died at his home in Nashville, April 5, from angina pectoris, aged 62.

William Hudson Hopwood, Jr., M.D. Jefferson Medical College, Philadelphia, 1906; a member of the American Medical Association; formerly physician for the Pittsburgh Coal Company at Grindstone, Pa.; died at the home of his mother in Morgantown, W. Va., July 25, from tuberculosis, aged 28.

Julius F. Menestrina, M.D. Washington University, Medical Department, St. Louis, 1890; a member of the American Medical Association; a veteran of the Spanish-American War; formerly of Iron Mountain, Mich.; died at his home in St. Louis, Mo., July 28, from paralysis, aged 43.

Perry W. Welker, M.D. Eclectic Medical Institute, Cincinnati, 1875; health physician of Alliance, Ohio, for more than seventeen years; died suddenly in his stateroom on the steamer City of Mackinac while on his way to Petoskey, Mich., July 27, from heart disease, aged 58.

David Flavel Woods, M.D. University of Pennsylvania, Department of Medicine, 1864; formerly a member of the American Medical Association; a member of the staff of the Presbyterian Hospital, Philadelphia; died at his home in that city, July 28, from angina pectoris, aged 72.

George W. Chisholm, M.D. Detroit (Mich.) College of Medicine, 1904; a member of the Michigan State Medical Society; a prominent practitioner of Pontiac; died at Harper Hospital, Detroit, where he had gone for treatment, July 29, from leukemia, aged 42.

George Murray Stuart, M.D. College of Physicians and Surgeons, Baltimore, 1905; a member of the Medical Society of the State of Pennsylvania; is said to have been shot and killed in his apartments at Pittsburg, Pa., August 1, aged 27.

Charles N. Denison, M.D. Cincinnati College of Medicine and Surgery, 1861; surgeon of the Eighth Illinois Volunteer Infantry during the Civil War; died at his home in Argenta, Ill., July 25, from papilloma of the bladder, aged 74.

William Varner Robertson, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1887; was found dead in his room at Athens, Ga., July 14, from the effects of an overdose of some narcotic taken accidentally, aged 49.

Delos Walker, M.D. University of Michigan, Department of Medicine and Surgery, 1864; a member of the American Medical Association; died at his home in Oklahoma City, Okla., July 30, from heart disease, aged 78.

Charles R. Strong, M.D. Detroit (Mich.) College of Medicine, 1903; a member of the Michigan State Medical Society; of Detroit; died at the Red Cross Hospital in that city, August 1, following an operation for appendicitis.

Benjamin Dabney, M.D. New Orleans School of Medicine, 1869; a Confederate veteran; formerly of Bonham, Texas; a resident of Dallas for the last two years; died at Fort Worth, July 30, aged 63.

Alexander L. Murphy, M.D. Jenner Medical College, Chicago, 1909; of Chicago; was killed by a Pere Marquette train at Benton Harbor, Mich., July 23, while on his way to Bangor, Mich., aged 36.

Albert E. Shimmel, M.D. University of Michigan, Department of Medicine and Surgery, 1880; formerly of Berlin, Mich.; died at his home in Grand Rapids, Mich., July 30, aged 54.

Virgil W. Blanchard, M.D. University of Vermont, College of Medicine, Burlington, 1859; of New York City; died at his summer home in Middlebury, Vt., July 30, aged 79.

Irvin Baird Brittingham, M.D. University of Louisville (Ky.) Medical Department, 1846; died at the home of his son in Madison, Wis., July 23, from senile debility, aged 85.

Abraham Nestor Fretz, M.D. University of Pennsylvania, Department of Medicine, 1863; a veteran of the Civil War; died at his home in Fleetwood, Pa., July 28, aged 70.

Frederic W. Lilienthal, M.D. University of Berlin, Germany, 1858; of New York City; died at his country estate in the Catskills, July 28, from heart disease, aged 77.

Richard Henry Stone, M.D. College of Physicians and Surgeons, New York City, 1866; died suddenly at Brooklyn, N. Y., July 27, from cerebral hemorrhage, aged 74.

Horace Stanwood Everett, M.D. Harvard Medical School, Boston, 1870; a veteran of the Civil War; died suddenly at his home in Boston, July 26, aged 69.

Frederick Kidder, M.D. College of Physicians and Surgeons, New York City, 1868; died at his home in Afton, Mo., July 26, from cancer of the liver, aged 66.

Benjamin Franklin Emrick, M.D. College of Physicians and Surgeons, Baltimore, 1881; died at his home in Carlisle, Pa., July 26, from heart disease, aged 50.

George Baillie Simpson, M.D. Bellevue Hospital Medical College, New York City, 1887; died at Sheridan, Wyo., July 4, from heart disease, aged 50.

Leander S. Porter, M.D. Homeopathic Hospital College, Cleveland, Ohio, 1880; of Port Clinton, Ohio; died at Dayton, July 26, aged 80.

J. Warren Royer, M.D. University of Pennsylvania, Department of Medicine, 1845; died at his home in Trappe, Pa., July 25, aged 90.

James I. Wright, M.D. Jefferson Medical College, Philadelphia, 1852; died at his home in Philadelphia, July 27, aged 78.

Ellis Holmes Cornish, M.D. Harvard Medical School, Boston, 1867; died at his home in Carver, Mass., July 25, aged 69.

Correspondence

Neurologic Hospitals and Neurologic and Psychiatric Wards in General Hospitals

To the Editor: The timely and instructive article, "The Dependence of Neurology on Internal Medicine: Plea for the Establishment of Neurologic Hospitals and of Neurologic Wards in General Hospitals," by Drs. Joseph Collins and Pearce Bailey of New York (*THE JOURNAL*, July 30, 1910, p. 393), seems worthy of more extended comment than would be feasible in the brief period allotted to discussion at the Section meeting. The contention of the writers that this important branch of medicine has received scant recognition in the past from the philanthropic founders of medical laboratories and institutions may be true, in a general sense. The statement, however, that "in all America there is scarcely a general hospital with neurologic wards worthy of the name, with the exception of a few hospitals and inaccessible city almshouses in which cripples and dotards are crowded together under the care of untrained house staffs without laboratory facilities," seems a little broad. I do not presume to question its approximate accuracy as regards the country at large. From a local (Cincinnati) standpoint, however, it seems only just that we should appreciate more fully the actual advantages that we already possess for caring for neurologic and psychiatric ills as well as for teaching the subjects to the members of our medical classes in the University of Cincinnati. It is worthy of note that, owing to the advanced stand taken by the governing bodies of our Cincinnati Municipal Hospital, for some sixteen years past, a distinct and separate department of neurologic medicine has been in operation, both in the wards and in the clinical amphitheater, where the teaching is open to all medical students in the city at a merely nominal fee. This department comprises some forty beds on an average, bedside teaching to small classes of senior students being also a regular feature. Separate wards are allotted to neurologic patients, the female occupying a portion of a general medical ward. Incidentally, detached rooms have been available for a limited number requiring them; also a closed ward for more disturbed cases. These wards are served by two regular staff members, whose official rank and authority are on a par with those of any other of the staff. These chiefs of staff in the neurologic service alternate with each other in terms of four months each, and the courtesy of allowing either member to retain charge of any important case or cases, after his regular term expires, has always obtained. There have recently been added to the staff two members, with the rank of junior neurologists, whose duty it is to serve in place of or in addition to, the chief of service whenever requested. These junior staff officers also take an important part in the bedside teaching given in the wards regularly to the senior students. A separate intern is allotted to the neurologic service. More important still, this clinical organization is complemented in a most efficient manner by a special laboratory of neuropathology presided over by two salaried members of the university faculty. It may be seen from the above that the strictures of the article referred to, on the prevailing shortcomings for the teaching of neurologic medicine in America, do not apply to the situation in Cincinnati.

A still more important forward step in clinical organization and teaching facilities has just been taken with reference to the department of neurology and psychiatry. Owing to the wisdom and foresight of the efficient and self-sacrificing mem-

bers of the commission for the construction of our new municipal hospital (750 beds) now in course of erection, special provision is made for a separate, isolated and modern neurologic building, to contain also departments for acute psychopathic cases, male and female. Its capacity is to be fifty patients, with provision for expansion as required. This will enable us to avoid the undesirable feature of having neurologic and psychopathic cases, distributed over various parts of a general hospital.

F. W. LANGDON, Cincinnati.

Pharmaceutical Manufacturers and the Great American Fraud

To the Editor: In commenting in your issue of July 30, on Dr. Patek's letter concerning "Pharmaceutical Manufacturers and the Great American Fraud" you say that "the whole history of human progress shows that practically everything we now pronounce necessary to our comfort and material happiness has been brought into being for selfish reasons—that of bringing the inventor or discoverer riches or honor." The sentence might, I think, well be rounded off by adding "or the pleasure of following a congenial vocation." (Recall Bacon's "Happy men whose natures sort with their vocations"). The suggested addition would perhaps justify the toning down of the word "selfish" to "self-regarding."

A very brilliant author of our day somewhere says that all labor done for hire, which would not be done had the laborer an otherwise assured means of livelihood, is prostituted labor; and his epigrammatic phrase seems to reflect the views of authors like John Ruskin and William Morris. True or not, I cannot help thinking that true leaders in pharmacy as in other scientific lines must, after all, have some real love for their vocations, and that this has been a more potent factor in invention and discovery than the desire of "riches or honor."

This love for a vocation is probably intensified by the desire to render service (an altruistic, not selfish or even self-regarding motive); and the essence of our grievance against these great pharmaceutical houses lies in the tendency of their narrow commercial self-seeking to degrade the skilled employee, whose pride and happiness should be in fruitful work and research, to the level of the hireling.

W. R. TYMMS, M.D., Orting, Wash.

Extreme Sensitization From Prophylactic Dose of Diphtheria Antitoxin

To the Editor: Four years ago I administered to a young man 750 units of antidiphtheritic serum as an immunizing dose and within a few moments he was in a serious condition, suffering from dyspnea, general urticaria, rapid pulse, vomiting, etc. He recovered within twelve hours and since that time had been unable to be about horses even for a short time. The emanations from the hairy coat give him severe attacks similar in every way to hay fever, which may become bronchitis secondarily. This patient had no previous personal or family history of asthma or hay fever.

How long is this susceptibility liable to continue, and if he should contract diphtheria, is there any serum that may be used?

L. SIMPSON, Rochester, N. Y.

More New Terms

To the Editor: I want to thank Dr. Henry Freeman Walker for his communication in *THE JOURNAL*, July 2, 1910, page 42, suggesting the word "viroid" as a generic term for the biologic specifics (toxins, bacterial cultures, bacterial products, lymph, serum, etc.) used in active immunization. I have adopted the word; and my own suggestions of "bacterin," "microbin" and "microbion" can now become specific names under the genus "viroid."

I would also call attention to two other terms I am about to introduce, for which there seems to be much need:

pathogen, meaning a material morbid agent of any kind, and *antipathogen*, meaning a pharmakon of any kind which acts against pathogens in general.

S. SOLIS COHEN, Philadelphia.

Correction in Abstract on Bone Lesions

To the Editor: In the abstract of my article on bone lesions in THE JOURNAL, July 30, page 436, the following error was made: "Syphilitic epiphyseal enlargement is bilateral." It should read: "Syphilitic epiphyseal enlargement is unilateral; rachitic epiphyseal enlargement bilateral."

ALEXANDER E. HORWITZ, St. Louis.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FORMULA FOR OLEUM CINEREUM

To the Editor: Kindly furnish me the formula for preparing oleum cinereum. A. E. CONTER, Apalachicola, Fla.

ANSWER.—A number of formulas for this preparation have been given, differing chiefly in the excipient used. The following is given by the British Pharmaceutical Codex:

Mercury	40.00
Wool fat	10.00
Liquid paraffin, sufficient to produce (by weight).....	100.00

Melt the wool fat, pour into a warm mortar, and, when it is nearly cold but still liquid, add the mercury and triturate until a homogeneous mixture is obtained; then add the liquid paraffin.

DETERMINATION OF FAT IN MILK

To the Editor:—Please state where I can find the method for determining the fat in milk by means of amyl alcohol and hydrochloric acid F. E. CLOUGH, Lead, S. Dak.

ANSWER.—The method is described in Leffmann and Beam's "Food Analysis," pages 205-207 (P. Blakiston's Son & Co., Philadelphia).

The Public Service

Medical Department, U. S. Army

Changes for the week ended Aug. 6, 1910:

Clayton, Jere B., major, will proceed from Vancouver Barracks, Wash., to Camp of Instruction, American Lake, Wash., for duty. Reynolds, F. P., major, granted 10 days' leave of absence. Stallman, George E., dental surgeon, ordered to proceed to the Leon Springs Target and Maneuver Reservation, Tex., for duty during the encampment.

Griswold, W. Church, M. R. C., relieved from duty at Fort Oglethorpe, Ga., and ordered to Philippine Islands, for duty on transport sailing from San Francisco about Nov. 5, 1910.

Brown, Wilmont E., M. R. C., sick leave of absence further extended 3 months.

Williams, Harry B., M. R. C., granted 15 days' leave of absence about Sept. 15, 1910.

Cole, Blase, M. R. C., ordered to proceed from Fort Crook, Neb., to Fort Mackenzie, Wyo., for temporary duty.

Banister, William B., lieutenant col., detailed for duty at the Camp of Instruction, Maneuver Reservation, Sparta, Wis.

Ebert, Rudolph G., lieutenant col., left Headquarters, Dept. of Columbia, Vancouver Barracks, for duty at Camp of Instruction, American Lake, Wash.

Roberts, William M., major, left Camp of Instruction, Gettysburg, Pa., en route to Saratoga, N. Y., and Pimlico, Md., on detached duty.

Clark, John A., leave of absence granted in S. O. No. 143, June 20, 1910, War Department, is extended 15 days.

Winter, Francis A., major, ordered to proceed to New York City, for consultation with the medical supply officer in that city with reference to the purchaser of medical supplies, etc.

Yemans, Herbert W., M. R. C., ordered to repair to this city at the proper time and report in person Aug. 21, 1910, to the Chief of Staff, for temporary duty.

Morse, Charles E., capt., relieved from duty at Schofield Barracks, H. T., and will proceed to San Francisco, and on arrival report by telegraph to The Adjutant General of the Army, for further orders.

Murray, Alexander, capt., on arrival at Seattle, Wash., in compliance with orders heretofore issued, will proceed to Fort Casey, Wash.

Smith, Herbert M., capt., relieved from duty at Fort Casey, Wash., and will proceed to Philadelphia, Pa., for duty as attending surgeon in that city.

Shepherd, John L., leave of absence extended 15 days.

Davis, William T., capt., in addition to his present duties will report in person to Colonel Louis A. LaGarde, Medical Corps, President of the Faculty, Army Medical School, for duty as assistant instructor in ophthalmology and optometry at that school.

Wickline, William A., capt., in addition to his duties with Co. C, Hospital Corps, will report in person not later than Oct. 1, 1910, to Colonel Louis A. LaGarde, President of the Faculty, Army Medical School, for duty as instructor in Hospital Corps and first aid, at that school, relieving Major Charles R. Reynolds, Medical Corps.

Vaughan, Milton, contract surgeon, reported for duty at Fort Logan H. Roots, Ark.

Long, Charles J., dental surgeon, left Fort Adams, R. I., en route to Pine Camp, N. Y.

Pomeroy, William H., contract surgeon, granted 21 days' leave of absence.

Whinnery, J. C., dental surgeon, died at Zamboanga, Mindanao, P. I., July 29, 1910.

Schreiner, E. R., major, left Fort Walla Walla, Wash., for duty at Camp of Instruction, American Lake, Wash.

Truby, Willard F., major, left Fort Worden, Wash., en route to Camp of Instruction, American Lake, Wash.

Van Poole, G. McD., major, and Mount, James R., lieutenant, report for duty at Camp Emory Upton, Sparta, Wis.

Clayton, George R., M. R. C., reports at Camp Bruce E. McCoy, Maneuver Reservation, Sparta, Wis.

Talbot, E. M., capt., and Haverkamp, C. W., lieutenant, report at Camp Bruce E. McCoy, Maneuver Reservation, Sparta, Wis.

Barney, Charles N., major, granted 30 days' leave of absence about Sept. 1, 1910.

Whitmore, W. C., contract surgeon, reported for duty at Fort McKinley, Me.

Burkett, John A., lieutenant, left Fort Riley, Kan., with the 6th Field Artillery, on practice march.

Fox, James S., lieutenant, reported for duty at camp, Leon Springs, Tex.

Medical Corps, U. S. Navy

Changes for the week ended July 30, 1910:

Rhoades, G. C., asst.-surgeon, ordered to duty at the Naval Hospital, Norfolk, Va.

Bloedorn, W. A., asst.-surgeon, ordered to the Navy Yard, Mare Island, Cal.

Downey, J. O., asst.-surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to duty at the Naval Hospital, Naval Home, Philadelphia.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Aug. 3, 1910:

Banks, C. E., surgeon, granted 7 days' leave of absence from Aug. 1, 1910.

Wertebaker, W. P., surgeon, directed to proceed to Richmond, Va., on special temporary duty.

Fox, Carroll, P. A., surgeon (on leave), directed to report at the Bureau on special temporary duty.

Korn, W. A., P. A., surgeon, directed to proceed to Point Pleasant, N. J., for the purpose of making examination of keepers and surfmen of the Life-Saving Service.

Sweet, Ernest A., P. A., surgeon, granted 4 days' leave of absence from July 21, 1910, under paragraph 191, Service Regulations.

Spratt, R. D., P. A., surgeon, granted 5 days' leave of absence from July 23, 1910, on account of sickness.

Frost, W. H., P. A., surgeon, directed to proceed to Des. Moines, Iowa, on special temporary duty.

Mullan, E. H., P. A., surgeon, granted 2 days' leave of absence from July 30, 1910, under paragraph 191, Service Regulations.

Preble, Paul, asst.-surgeon, granted 1 month's leave of absence from Aug. 8, 1910.

Kearny, Richard, asst.-surgeon, directed to proceed to San Francisco, and report to the medical officer in command for duty and assignment to quarters. Directed to report to the medical officer in command at Chicago, for temporary duty en route to station.

Draper, Warren F., asst.-surgeon, directed to proceed to Angel Island, Cal., and report to the medical officer in command for duty and assignment to quarters.

Gillespie, Julian M., asst.-surgeon, directed to proceed to Honolulu, Hawaii, and report to the Chief Quarantine Officer for duty. In addition to present duties, directed to report to commanding officer, Revenue Cutter *Thetis* from time to time for temporary duty.

Stiles, C. W., professor, detailed to represent the Service at the meeting of the International Zoologic Congress at Gratz, Austria, Aug. 15-20, 1910.

Blanchard, J. F., acting asst.-surgeon, granted 3 days' leave of absence from July 11, 1910.

Cleaves, F. H., acting asst.-surgeon, granted 3 days' leave of absence from July 28, 1910, under paragraph 210, Service Regulations.

Delo, J. M., acting asst.-surgeon, granted 7 days' leave of absence from July 26, 1910, under paragraph 210, Service Regulations. Granted 7 days' leave of absence from July 24, 1910.

Duffy, Francis, acting asst.-surgeon, granted 6 days' leave of absence from Aug. 3, 1910.

Harkins, F. McD., acting asst.-surgeon, granted 14 days' leave of absence from Aug. 1, 1910.

Hamilton, H. J., acting asst.-surgeon, leave of absence for 4 days from July 19, 1910, amended to read 4 days from July 26, 1910.

Onuf, B., acting asst.-surgeon, granted 7 days' leave of absence from July 22, 1910, under paragraph 210, Service Regulations.

Scott, J. F., acting asst.-surgeon, granted 24 days' leave of absence from June 3, 1910.

Stevenson, J. W., acting asst.-surgeon, granted 30 days' leave of absence from Aug. 3, 1910.

State Boards of Registration

Arkansas Eclectic May Report

Dr. G. A. Hinton, secretary of the Arkansas Eclectic Medical Board, reports the written examination held at Little Rock, May 11-12, 1910. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The 5 candidates all passed.

College	PASSED	Year Grad.	Per Cent.
Eclectic Medical University Kansas City	(1910)	76.8, 78.7,	81.7, 85.3, 88.7

Michigan May Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Detroit, May 19-21, 1910. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75, and not less than 50 per cent. in any subject. The total number of candidates examined was 35, of whom 33 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Detroit College of Medicine	(1909) 79.6; (1910) 75.2, 77.1,	80.6, 80.7, 80.9, 81.5, 81.8, 82, 82.2, 82.9, 83.8, 84.1, 84.5, 85.4, 85.7, 86.1, 86.4, 86.8, 87, 87.4, 87.7, 88.5, 89.1, 89.9, 91, 90.2, 90.5	
Detroit Homeopathic College	(1910)	76.3, 82.5	
University of Michigan, Homeopathic College	(1910)	82.6	
FAILED			
Detroit Homeopathic College	(1910)	66.9	
Detroit College of Medicine	(1910)	68	

Nebraska May Report

Dr. E. Arthur Carr, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, May 11-12, 1910. The number of subjects examined in was 13; total number of questions asked, 130; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Ensworth Medical College	(1910) 75, 78.8, 81.8,	85.5, 87.3,	88.8
LICENSED THROUGH RECIPROCITY			
College	Year Grad.	Reciprocity with	
Northwestern Univ. Med. School	(1898) Wis.; (1909)	Illinois	
Rush Medical College	(1881) Minnesota; (1908)	Wisconsin	
College of Phys. and Surg., Chicago	(1903) (1904)	Illinois	
University of Louisville	(1907) W. Virginia		
Central Medical College, St. Joseph	(1898)	Missouri	
Ensworth Medical College	(1908) Kansas; (1890)	Missouri	
Creighton Medical College	(1907)	Iowa	
McGill University, Canada	(1908)	Illinois	

Delaware June Report

Dr. H. W. Briggs, secretary of the Medical Council of Delaware, reports the written examinations held by the Delaware State Medical Society and the Homeopathic Medical Society respectively at Dover and Wilmington, June 21-23, 1910. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. At the examination held by the Delaware State Medical Society, the 6 candidates all passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Jefferson Medical College	(1909) 86.7; (1910)	86.8, 91.5	
University of Pennsylvania	(1901) 85.1; (1910)	90.3	
University of Virginia	(1910)	91	

At the examination held by the Homeopathic Medical Society, the 5 candidates all passed.

College	PASSED	Year Grad.	Per Cent.
Atlantic Medical College	(1908) 81.5; (1909) 79, 82.6;	(1910)	84.2, 87.2

Minnesota June Report

Dr. W. S. Fullerton, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at St. Paul, June 14-17, 1910. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 42, of whom 27 passed and 15 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1910)	80.4	
Northwestern University Medical School	(1910)	79.2	
University of Minnesota, College of Medicine	(1910) 77.6, 78.5, 78.8, 79, 80.3, 80.5, 80.8, 81.4, 82.3, 82.4, 82.5, 83.8, 84.9, 85.7, 86.1, 86.5, 86.6, 87.3, 88.5, 88.7, 90.1		
Hamline University	(1910)	78.4	
University of Pennsylvania	(1908)	75.2	
Jefferson Medical College	(1910)	88.7	

FAILED			
Northwestern University Medical School	(1910)	63.1, 67.9	
Chicago College of Medicine and Surgery	(1909)	46.5	
Louisville and Hospital Medical College	(1908)	52.5	
University of Minnesota	(1909) 72.8; (1910) 75.8,* 76.5,* 76.8*		
Hamline University	(1909)	69.1	
Barnes Medical College	(1905)	52.4	
Jefferson Medical College	(1909) 65.5, 73.2		
Hahnemann Med. Coll. and Hosp., Philadelphia	(1910)	77.5*	
Marquette University, Milwaukee	(1910)	72.3, 75.8	

LICENSED THROUGH RECIPROCITY			
College	Year Grad.	Reciprocity with	
Rush Medical College	(1900)	Illinois	
Northwestern University Medical College	(1908)	Illinois	
Hahnemann Med. Coll. and Hospital, Chicago	(1906)	Illinois	
Bennett College of Eclectic Med. and Surg.	(1897)	Iowa	
Medical College of Indiana	(1902)	Illinois	
Drake University	(1909)	Iowa	
St. Louis University	(1909)	Illinois	
Wisconsin College of Physicians and Surgeons	(1907)	Wisconsin	
Marquette University, Milwaukee	(1908)	Wisconsin	
University of Toronto, Ontario	(1908)	Delaware	
Trinity Medical College, Canada	(1903)	Maine	
Royal University of Naples, Italy	(1892)	Illinois	

* Fell below 75 per cent. in one or more major branches.

New Hampshire July Report

Mr. H. C. Morrison, regent of the New Hampshire Board of Medical Examiners, reports the written examination held at Concord, July 6-7, 1910. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 30, of whom 24 passed and 6 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Louisville	(1910)	75	
Medical School of Maine	(1906)	85	
Baltimore Medical College	(1910)	84	
Tufts Coll. Med. School	(1907) 76; (1909) 75, 81; (1910)	86	
Harvard Med. School	(1888) 79; (1903) 83; (1908) 86; (1910) 82		
Dartmouth Med. School	(1908) 80; (1909) 78, 78, (1910) 80, 83, 85		
Cornell University	(1910)	86	
University of Vermont	(1906) 75	(1909)	77
Laval University, Canada	(1906) 75	(1909)	75, 75
McGill University, Canada	(1909)	84	

FAILED.			
Baltimore Med. College	(1909)	63	
College of Physicians and Surgeons, Boston	(1908)	68	
Tufts College Medical School	(1908)	74	
Dartmouth Medical School	(1897)	62	
Laval University, Canada	(1908) 70	(1909)	69

Utah July Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, July 4-5, 1910. The number of subjects examined in was 23; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 17, of whom 14 passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1910)	86.9	
Chicago College of Medicine and Surgery	(1910)	84.7	
Northwestern University Medical School	(1910) 78.8, 81.1,	83	
College of Physicians and Surgeons, Chicago	(1908)	79.5	
University of Louisville	(1907)	76.9	
College of Phys. and Surgs., Baltimore	(1910)	79.4	
Univ. of Mich. Dept. of Med. and Surg.	(1909)	80.6	
Long Island College Hospital	(1910)	85	
Cleveland Homeopathic Medical College	(1903)	76.8	
Jefferson Medical College	(1908) 82.2; (1910) 85.1		
Medico-Chirurgical College, Philadelphia	(1910)	81.8	

FAILED			
St. Louis College of Physicians and Surgeons	(1910)	69.9	
Medical College of Ohio	(1902)	54.2	
Medico-Chirurgical College, Philadelphia	(1910)	73.7	

Book Notices

NERVOUS STATES, THEIR NATURE AND CAUSES. By Paul Dubois, M.D., Professor of Neuropathology at the University of Berne. Authorized Translation by Edward G. Richards. Cloth. Price, 75 cents. Pp. 101. New York: Funk & Wagnalls Co., 1910.

This is Dubois's fourth work on the same general subject, namely, the class of diseases that have been usually considered as on the border-land between the organic and the functional nervous disorders, and their psychotherapy. The term "neurasthenia," he holds, has grown in general usage to include a far larger class of nervous symptoms than is altogether proper and is misleading to the extent that it implies that the nerves are at fault. It is not a distinct morbid entity by itself, at least in its usual application, but should be included with psychasthenia, hysteria, hypochondria and simple melancholia in the great class of central neuroses or psychopathic conditions; and these form the subject of this little volume. The author does not fall in with the more modern classification of morbid mental states completely, and especially protests against the materialistic conceptions which would associate these symptoms necessarily with other bodily conditions such as impaired nutrition and intoxications, etc. The psychasthenic individual is an hereditarily weakened one who as a rule belongs to a psychopathic family. There is a degenerative state at base, though not of a kind usually seen with gross physical stigmata. When one recognizes this fact of a primary mental weakness one sees the advantages to be obtained by mental training and therapeutics. The neurasthenic patients are those in whom the symptoms of fatigue, exhaustion and incapacity predominate. In the psychasthenics, in the narrower sense, the obsessions, ties and manias are characteristics, while in the hysterical states there is exaggerated autosuggestibility and a weakened mental synthesis. The hypochondriac and the simple melancholiac differ in their preoccupations. The one is concerned about his state of health, and the other regards exterior circumstances with sadness or his person and conduct with self-accusation. In all of these, there is a fundamental inferiority which is the primary trouble, but this not of the first importance as regards treatment or prognosis. The form the psychoneurosis takes depends on the individual mental peculiarities. The therapeutics of these conditions are not comprised in physical exercises, rest and hypernutrition, except so far as these are demanded by the physical condition, but are more largely in the cultivation of moral ideas and self-control. The patient should be taught the harmfulness of indulging in worry and fear, or of cultivating egoism. The task is the same, in short, as the education of normal people and is possible even in the uneducated so far as the combating of these nervous states is concerned.

LIGHT THERAPEUTICS. A Practical Manual of Phototherapy for the Student and the Practitioner. With Special Reference to the Incandescent Electric-Light Bath. By J. H. Kellogg, M.D., Author of Rational Hydrotherapy, the Art of Massage, etc. Cloth. Price, \$2.50. Pp. 217, with 67 illustrations. Battle Creek, Mich.: The Good Health Publishing Co., 1910.

The title of this book is misleading, because the work is not on phototherapy at all but on thermotherapy as administered by the electric-light bath or reflected electric light. It practically does not consider phototherapy, in the established sense as applied to the method of use of actinic light and as the method was worked out by Finsen and his followers. This misleading title is merely an oversight, however, for the author says in the first sentences of his preface: "The work does not profess to be an exhaustive treatise on the subject of light therapy. It is intended rather to serve as a practical manual for the clinical use of the electric-light bath in its various forms . . ." He considers at length the physiologic and therapeutic effects of radiant heat from intensely luminous sources of high temperature and this part of the work is ingenious and interesting. He makes out a good case for the electric-light bath as a therapeutic measure. He also gives rational explanations for the therapeutic value of the arc-light as used by him for the application to circumscribed areas of radiant heat. The combined use of these measures with hydrotherapy also comes in for full consideration. All this part of the book—which constitutes more than half of it—dealing with the principles and technic of the method is

suggestive and useful. The part directed to the clinical application of the methods in various diseases is less logically worked out and less convincing. Many of the suggestions are a shock to one's pathologic conceptions and lead one to feel that there is danger of the method degenerating into a sanitarium routine. But on the whole the book is a good statement of its subject from the standpoint of an advocate.

THE SURGERY AND PATHOLOGY OF THE THYROID AND PARATHYROID GLANDS. By Albert J. Ochsner, M.D., Professor of Surgery in the Medical Department of the University of Illinois, and Ralph L. Thompson, M.D., Professor of Pathology in the St. Louis University School of Medicine, St. Louis. Cloth. Price, \$6. Pp. 391, with 97 illustrations. St. Louis: C. V. Mosby Company, 1910.

Surgeons, pathologists and internists are alike interested in every addition to our knowledge of goiter and its complications. With the exception of Dock's chapter in Osler's book no treatise has heretofore appeared giving adequate descriptions of the parathyroid glandules. Numerous articles in various languages contained all that was really important in the newer surgery and pathology of goiter until this admirable treatise made its appearance. The latest research in the physiology and pathology of those somewhat mysterious bodies, the parathyroid glandules, is carefully collated in this work and together with the pathology of the thyroid gland this is the work of the junior author (Thompson). The senior author (Ochsner) has contributed the chapters on technic and the whole thyroid gland section except the chapters on pathology. The whole subject of the operative treatment of goiter may be said to belong to the last quarter of the nineteenth century and the first decade of the twentieth. The book also represents much original work, mainly that of Professor Wilson of St. Louis. Post-operative tetany, cachexia thyreopriva, cretinism and hyperthyroidism are each elaborately covered in the latter half of the work. Thirty full page plates minutely illustrate the successive stages of thyroidectomy, and if surgical technic could be learned from half-tone pictures the novice could learn to operate by the use of this work.

LIVING ANATOMY AND PATHOLOGY. The Diagnosis of Diseases in Early Life by the Roentgen Method. By Thomas M. Rotch, M.D., Professor of Pediatrics, Harvard University. Cloth. Price, \$6. Pp. 225, with 303 illustrations. Philadelphia: J. B. Lippincott Co.

The anatomy of the living child, and the diagnosis of disease in early life as it may be studied by the Roentgen ray, are considered by the author in a systematic treatise containing more than 300 illustrations, and combining in the highest degree the art and science of Roentgenology. The distinction between anatomic and chronologic age—a distinction for which we are indebted to the author—is convincingly presented.

The assistance that may be afforded by the rays, not alone in detecting the presence of foreign bodies or anomalies of the osseous system, but in revealing pathologic changes in the soft tissues, more especially of the thoracic or abdominal organs is graphically portrayed by many illustrations. To select one example, the differentiation between dilatation of the heart and pericarditis with effusion can be made from the Roentgenograph by the consideration of the cardiohepatic angle. The book deserves high commendation and should be possessed by every clinician.

ESSENTIALS OF MEDICAL ELECTRICITY AND RADIOGRAPHY. By Edward R. Morton, M.D., Vice-President, Electro-Therapeutical Section, Royal Society of Medicine. Second Edition. Cloth. Price, \$1.75. Pp. 343, with 140 illustrations. Chicago: Chicago Medical Book Co., 1910.

This is an excellent manual. The first 210 pages are given to medical electricity; the last 240 to radiography; radiography is not a part of the volume. The whole work is well done. The apparatus and the physics of both subjects are adequately considered; and the application of the agents to medicine are plainly given, with reasonable conservatism. The book is thoroughly worthy of recommendation.

EMERGENCIES OF GENERAL PRACTICE. By Percy Sargent, M.B., Surgeon to Out-Patients, St. Thomas' Hospital, and Alfred E. Russell, M.D., Physician to Out-Patients, St. Thomas' Hospital. Cloth. Price, \$5.50. Pp. 364, with 91 illustrations. New York: Oxford University Press, 1910.

This is a concise and practical manual, clearly written and well arranged, freely illustrated and of great practical value. The authors confine themselves, very properly and rather unusually, to the subject-matter at hand and do not roam far afield into the domains outside of emergencies.

Miscellany

THE EHRlich REMEDY FOR SYPHILIS*

At a meeting of the Berlin Medical Society, June 22, 1910, W. Wechselmann reported his experiences with Ehrlich and Hata's new remedy for syphilis and discussed the following questions: 1. Is it a specific in syphilis and is it superior to previously known remedies? 2. Does it cure syphilis? 3. Are the dangers of the remedy proportional to the importance of its action.

Wechselmann believes that the most skeptical will admit that the new remedy acts on the symptoms of syphilis in all their infectious forms, with a rapidity and thoroughness which cannot be approached by any other known remedy. He has tested it in eighty cases and states that the action occurred with the certainty of an experiment. Eruptions and ulcerations rapidly heal; in the case of indurated chancre, the surface becomes rapidly clean, but the final healing takes somewhat longer on account of the absorption of the infiltration. It is found that symptoms which do not heal under mercury heal rapidly under the new remedy. The patients begin almost immediately to exhibit an improved general condition and increase rapidly in weight. In one case of visceral syphilis affecting the testicle and also probably the brain, the patient was apparently cured in two weeks with a gain in weight of two pounds. He has observed no relapses, although the period of observation is too short for certainty on this point.

According to his observation the remedy has shown no toxic action. In the case of a patient very much reduced by pernicious anemia, depending on a recent syphilis, an injection of 0.3 gm. (5 grains) temporarily increased the strength, although it was impossible to save the patient's life. No injurious action on the optic nerve has been observed. In infants with hereditary syphilis, which is nearly always fatal, Wechselmann has been able to save two out of five who were treated with this remedy. In the other three the external symptoms disappeared, but death occurred from the affection of the internal organs. Wechselmann prefers the intragluteal injection, its only disadvantage being the severe local pains. (*Berl. Klin. Wchnschr.*, July 4, 1910, p. 1261).

Wechselmann has recently improved the technic by dissolving the remedy in sodium hydroxid solution, adding glacial acetic acid until a precipitate occurs, suspending this in distilled water and carefully neutralizing. In this way the pain is greatly mitigated (*Deutsch. med. Wchnschr.*, July 28, p. 1395).

At the meeting of the Berlin Medical Society, at which Wechselmann's paper was read, L. Michaelis reported several cases, confirming the statements of Wechselmann. At the same meeting Alt reported the results in the treatment of nervous cases. After trial on the higher animals he tried the remedy on fifty syphilitics. His results were very favorable. He reports one case of very severe syphilitic icterus which disappeared in about nine days after the injection of 0.4 gm. The remedy was tried in a number of relatively recent cases of tabes and in six cases he observed not only a marked retrogression of the subjective symptoms but also an improvement in the objective symptoms and in the general condition. He reports favorable results in the treatment of epilepsy depending on syphilitic taint. He finds that the excretion of the arsenic takes a somewhat longer time than was formerly supposed. He has seen cases in which arsenic was still being excreted ten to twelve days after the injection.

Neisser writes to the *Deutsche medizinische Wochenschrift* (June 30, 1910, p. 1212), that it is yet too early to give a definite opinion, as an insufficient number of cases have been treated, but he says that it can be affirmed with certainty that the new remedy exerts a remarkable, even surprising action on the spirochete, as well as on the syphilitic products themselves. Spirochetes disappear in very many cases after from twenty-four to forty-eight hours from primary lesions and con-

dylomata in which they were abundantly present before administration. It produces a local reaction in papules and other cutaneous lesions. As to the syphilitic processes, so rapid a retrogression of primary lesions, papular syphilides and especially ulcers can be observed so as to leave no doubt regarding the specific character of the remedy. He reports a prompt relief of symptoms in a case of brain syphilis. He has obtained a reversal of the seroreaction in only about 10 per cent., but thinks that this may be due to the use of too small doses. The cases in which this reversal of reaction occurred were those which came under treatment soon after infection. It does not always prevent the progress of the disease, however, even when applied in cases of primary lesion before the seroreaction is positive. It seems, however, when given to apes, to delay and mitigate the primary lesion. He thinks that the remedy will be especially useful in cases in which mercury treatment has failed or cannot be applied. He advises private practitioners to delay the use of the remedy until present uncertainties regarding dosage and the number and repetition of the injections are settled.

Schreiber and Hoppe (*München. med. Wchnschr.*, July 5, 1910, p. 1430), report their experience in a number of cases. They resort to the intravenous injection and in the treatment of 30 cases found no unpleasant side-effect. The rise of temperature which has been observed in cases in which intramuscular injections were made did not occur in the intravenous injection. They noted no injurious effect on the kidneys nor on the digestive organs. In two cases they noted a scarlatina-like eruption which came on ten days after the injection and lasted three days.

In fifty-two cases they found that the Wassermann reaction became negative in 92.3 per cent. This occurred in the earliest case, four days, and in the latest, seventy days after the injection, but in most cases within fourteen days. They noticed a leukocytosis in most cases. No toxic symptoms were observed by them and they call attention to the fact that the highest dose which they had employed was 0.0096 gm. per kilo, and the toxic dose as shown by animal experimentation is 0.15 gr. per kilo, so that the doses in present use could be considerably increased. For this reason they have increased the dosage from 0.3 to 0.7 gm. They concluded that the remedy has an absolute specific action in syphilis which is manifest after a single injection. They consider it as contraindicated in severe diseases of the circulatory organs, the kidneys and the eyes.

H. Loeb (*München. med. Wchnschr.*, July 26, 1910, p. 1580), reports thirty-five cases with very favorable results. He saw no toxic symptoms and noted in cases in which roseola was present an intensifying eruption (Herxheimer's reaction). One patient relapsed; but he attributed this to an insufficient dose (0.14). The Wassermann reaction was only slightly affected in his cases. But he thinks the time is too short in which to form an opinion.

G. Treupel reports nine cases which confirm the reports of other observers (*Deutsch. med. Wchnschr.*, July 28, 1910, p. 1393).

Fischer and J. Hoppe have investigated the excretion of arsenic (*München. med. Wchnschr.*, July 19, 1910, p. 1531). In the use of this remedy they found that the excretion in paralytics required from twelve to fourteen days and the amount excreted in the urine was quite variable. In the case of epileptics with healthy kidneys, the excretion of arsenic lasted only about three days. This is true also of ordinary syphilitics. Generally the excretion was completed sooner after the intravenous injection than after the intramuscular injection. They found that the preparation was not absorbed to any great extent by the rectum, but a considerable amount of arsenic was excreted in the stool after intramuscular or intravenous injections. The excretion per rectum continued longer than by the kidneys. They found also that after an intramuscular injection a considerable amount of arsenic remained for a long time in the muscular tissues. Thus in cases which came to autopsy they found arsenic in the gluteal muscles, in one case after fourteen days and in another after thirty-six days.

* This subject is discussed editorially in this issue and also in the Berlin Budapest letters, pages 609 and 610.

Gall-Stones Containing Typhoid Bacilli.—An instance of the formation of cholesterol gall-stones containing typhoid bacilli within sixty-eight days of the onset of typhoid fever is reported by Hertz and Adams (*Proc. Roy. Soc. Med.*, May, 1910). A woman, aged 24, had always been constipated, her bowels never moving more than twice a week, and then only with the aid of purgatives. For three years or over, since the birth of her child, she had occasionally suffered from a dull aching pain in the epigastrium, which began immediately after food and was occasionally relieved by vomiting. It was not sufficiently serious to cause her to take medical advice. She had not had typhoid previously. The typhoid fever ran a typical course from Dec. 2, 1909, to Jan. 14, 1910, when she had a relapse, with fever and rash, which lasted until January 24. February 1 she complained for the first time of pain in the epigastrium and back, and vomited. The gall-bladder was found to be enlarged and slightly tender. There was no jaundice or pyrexia. The pain persisted and attacks of bilious vomiting occurred from time to time. On February 18 the temperature rose to 99.4 F. and the patient was sent to the hospital and from the symptoms suppurative cholecystitis was diagnosed. The patient was operated on the same evening. The gall-bladder was distended, tense and adherent to surrounding structures. It was opened and 4 ounces of clear fluid escaped and half an ounce of pus was evacuated. Twenty-five faceted gall-stones were removed from the gall-bladder, which consisted of slightly pigmented cholesterol of the usual hardness. The clear fluid and pus both contained pure culture of *B. typhosus*. The same organism was isolated from the center of some of the gall-stones. As this was the patient's first attack of typhoid fever, and the *B. typhosus* was found in the center of the gall-stones, it is clear that they must have been formed between the onset of the typhoid fever on December 12 and the operation February 18, a period of sixty-eight days.

Recognition of the Individual by Hemolytic Methods.—Dr. C. Todd and R. G. White reported to the Royal Society, June 16 (*Nature*, June 23), experiments which they sum up as follows: "1. The immunization of the ox with the red blood corpuscles of other oxen gives rise to the formation of a hemolytic amboceptor in the blood of the immunized animals. 2. The amboceptor so formed is an isolysin, but not an autolysin. 3. The race of the animal appears to have very little influence on the resulting hemolysins. 4. The serum of an animal so treated acts very differently on the red blood corpuscles of different individual oxen. 5. The serums of different individuals similarly immunized differ from one another in their action on the corpuscles of different individuals. 6. If the serum of a single immunized animal be 'exhausted' with excess of the corpuscles of one other individual, the serum loses its power of hemolyzing the corpuscles of this individual, while retaining the power of hemolyzing the corpuscles of many, but not all, other individuals. 7. If, however, a polyvalent serum be made by mixing the serum of a large number of immunized animals, and this serum is exhausted with the corpuscles of any one individual, the serum entirely loses its power of hemolyzing the corpuscles of this individual, but remains strongly hemolytic for all other individuals not closely related to the individual the corpuscles of which were employed for the exhaustion of the serum. (N. B.—It is possible that exceptions may be found.) 8. The red blood corpuscles of any individual are thus characterized by a definite individuality of their own, and can be distinguished from those of any other individual of the same species."

The Influence of the Operation of Resection of the Kidney on Function.—The experimental work which forms the basis of this preliminary report by Cunningham (*Bull. VI, Med. School of Harvard University*, April, 1910) was suggested by an operation on a young woman with but a single kidney, which contained calculi. The kidney was exposed and split in Brödel's line and three calculi of medium size removed from the kidney and another the size of a pea from the ureter through the pelvis of the kidney. The ureter was then proved to be patent. The incision in the pelvis was closed with fine silk and in the substance with mattress sutures of catgut. Following operation about 1 ounce of bloody urine

was removed by catheter. The patient was catheterized one hour later and then every half-hour subsequently, but no urine was obtained from the bladder until eight and one-half hours after operation. At that time a little more than 1 dram of slightly bloody urine was obtained. The amount of urine then increased gradually to the normal amount. The question to be determined by Cunningham's experiments was: Does a kidney which is subjected to an operation, temporarily cease functioning, (a) when the wound is closed by sutures, (b) when the kidney wound is drained, by a rubber tube or by gauze. Rabbits were used in the experiments and methylene blue was injected into the stomach hypodermically. The findings and conclusions were as follows: The rabbit normally urinates about every three hours. After a left-sided nephrectomy, urine was not voided for from ten to eighteen hours, except in one instance, when a blue urine was voided in from four to six hours. After resecting a portion of the remaining kidney, opening into the renal pelvis and closing the wound entirely, urination did not take place for between thirty-eight and forty-three hours, and in one instance between forty-three and forty-four hours. After resecting a portion of the kidney and draining it with a rubber tube through the loin, urine was secreted in every animal before eight hours, and in most between six and seven. After resecting a portion of the kidney and draining it with gauze through the loin, urine was secreted in all the animals between six and seven hours except in one which showed a blue fluid between four and five hours. The urine drained through the loin and also through the ureter into the bladder. Cunningham says that it will thus be seen that following the operation of kidney resection and closing the wound in the kidney entirely, there results a temporary arrest of the kidney function; that performing the same operation and draining the kidney pelvis, not closing the kidney wound entirely, does not cause a suppression of kidney function, in the same degree at least; that when the kidney pelvis is drained by a rubber tube, the drainage through the loin is freer than when the gauze is employed. He is not able to explain any of the facts stated.

The Nervous Child.—It is a lamentable and disquieting fact that nervousness in childhood is increasing, says A. Roos (*Layman's Med. Jour.*, May, 1910). Nervous children are present in all classes of society, in the country as well as in the cities. Even shortly after birth may be observed a peculiar smile, distortion of features, spasmodic rolling of the eyeballs and incoordinate movements, the primary cause of which may be some trivial disturbance of digestion indicating a state of nervous morbidity. Convulsions are common a few months later during dentition; also sleeplessness, irritability and periods of crying and screaming without adequate cause. In pneumonia the nervous symptoms may be of sufficient intensity to mask the symptoms of the primary disease and they may resemble meningitis. Two distinct types of nervous temperament are recognized, psychic hyperesthesia and psychic hypesthesia. To these should be added a third condition characterized by periods of depression and dullness alternating with intervals of excitability. In the class of the first type are the children of delicate, spare build, mentally too far advanced for their age. The children of the apathetic class are less frequent, are usually well nourished, with an abundance of adipose tissue, phlegmatic and indifferent to external stimuli. Those of the changeable temperament are most frequently observed. They are apt to be effusive in their fondness for others at one time, and at another without cause indifferent, offensive and quarrelsome. They are enthusiastic in their play or school work, or again apathetic, indolent and discouraged. In the nervous child the resistance to external influences is diminished so that trivial causes, such as sudden excitement, a thunderstorm or the sight of a wound or drop of blood produces a psychic effect influencing the entire nervous system and the vasomotor system, producing pallor or vertigo, faintness and unconsciousness, or the influences may be transmitted to the motor nerves and we see the child uninterruptedly in motion. Standing, walking, sitting positions rapidly succeed each other, the fingers, hands and feet are never at

rest; nervous twitching of the facial muscles is not uncommon: the internal organs are not infrequently affected and there are palpitation, cramp-like pains in the region of the bladder and a desire to evacuate this organ or the bowels. Frequent and prolonged headaches are common. Nervousness in both parents is transmitted to offspring, but nervousness on the paternal side alone less frequently, unless it amounts to a neurosis. Nervousness on the maternal side is more frequently transmitted. Indifference, disrespect, contempt, etc., on the part of the parents, or alcoholism of the latter, will have effect on the children of such a union. Acquired causes of nervousness may be pathologic, as concussion or contusion of the brain from accident, acute congestion of the brain from infectious diseases, sunstroke, etc., and acute encephalitis or meningitis. In addition, are reflex causes, such as eruption of teeth, worms, constipation and localized pains, and constitutional diseases, such as anemia, albuminuria, diabetes, rickets, auto-intoxication, suppurative conditions, etc. Physiologic causes may be attributed to deficiencies in connection with the bringing up of the child, and may refer to the physical condition, the mental and moral state. Impressions on the extraordinarily sensitive brain of the first and second stages of childhood may become permanent and indelible, and should therefore be correct. Improper literature should be strictly avoided. Evening dancing parties, the theater, etc., for the very young are harmful, because they interfere with the regularity of habit and sleep. Remorse, injustice, jealousy, anger, are powerful causes of excitability. A systematized, regular method of living is of extreme importance, and should be begun immediately after birth and strictly adhered to. Errors in mental education are made not only in school, but more frequently in the home. Few parents devote themselves to the education of their children by the application of thorough discipline and a definite system or method. Some parents are authoritative and unnecessarily rigorous, avoiding explanations; others are indifferent, indolent and excessively indulgent. The child is without guide, is conscious of its power and the effect of its tears, is a veritable tyrant and abuses its power in order to obtain increased privilege. The inevitable consequence of this kind of training is pronounced nervousness. A sane method must be adopted in bringing up children and such a system must be adhered to.

Typhoid and the Milk-Supply of Washington Hospitals.—The Washington Milk Conference of 1907 decided that the limit of safety for milk to be consumed raw required that it should contain not more than 100,000 bacteria to the centimeter, and that all milk containing more should be pasteurized (*Wash. Med. Ann.*, ix, No. 1). The high mortality from typhoid fever in the hospitals of the District of Columbia and its possible connection with the milk supply led the Hygienic Laboratory of the U. S. M.-H. Service to collect samples of milk as found in different localities in Washington, with the result that the minimum count showed 340,000 bacteria per cm., running from that to 2, 3, 4, 5, 10, 15, 50 and up to 111 million per centimeter, and among these samples were some from a half dozen prominent hospitals and asylums. The average mortality from typhoid fever in the United States is 10 per cent., but the mortality in the Washington hospitals sometimes reaches the appalling rate of 16, 18, 20 and even 25 per cent., and in only one was it as low as 7 per cent. The danger from raw or improperly pasteurized cream is even greater than from improperly pasteurized milk, as it is found that the cream contains about 60 per cent. of the bacteria, although constituting but one-twentieth of the whole milk. Those who are studying the problem believe that nothing short of proper pasteurization will ever accomplish a reduction in the death-rate, and they urge municipal control over pasteurization plants so that the people may not be lured into a false sense of security by the mere word "pasteurized," since commercial pasteurization is often done so imperfectly as to be worse than none at all. Because milk offers a good supply of nourishment bacteria increase at an amazing rate, but the rate of increase is approximately seventy times greater at 60 F. than at 50 F., and this explains the high mortality in the summer time of infants fed on raw or improperly pasteurized milk.

Medicolegal

Liability for Malpractice in Case of Inexplicable Burn in Administering Static Electricity

The Supreme Court of Minnesota says, in *Frisk vs. Cannon & Balcome* (126 N. W. R., 67), that the plaintiff charged the defendants, as partners engaged in the practice of medicine, with having negligently treated her with static electricity, to her injury, but the trial court was justified in concluding that the defendants were not partners, and that the defendant Cannon was not liable for the alleged negligence of the defendant Balcome.

The plaintiff alleges that she was placed on an insulated platform connected with the electrical machine, a conical cap was put above and in front of her head, and static electricity was caused to be discharged by the machine through the cap on her head; that the defendant then left the room, and no attendant was present. After the lapse of eight or ten minutes the plaintiff screamed. The defendant immediately entered the room, and discovered that her head was smoking. A large portion of the top and sides of her head was seriously burned. Five thousand dollars damages were claimed, and a verdict of \$1,200 was returned in the plaintiff's favor, against the defendant Balcome, judgment for which is affirmed.

The statement by the court is very brief, but much that physicians will be interested in knowing about the case is contained in the dissenting opinion of Justice Jaggard. He says that the defendant called a number of well-known experts of the highest character. The effect of their testimony was: The amperage or the quantity of electricity generated by the machine in question was infinitesimal. It figured at some one-millionth of an ampere; but the electro-motive force was large. The effect resembled shooting a piece of elder-down from a gun. There was great force, but the missile was so slight in character that it could do no harm. No case had ever been known of injury to a person by a static machine, nor was one known in the literature of the profession. The occurrence was "unique in experience," "a perfect mystery, contrary to all laws of physics." It could not be accounted for by any action of the static machine. A physician who had been using one in his practice daily since 1885, and had given perhaps 100,000 treatments, gave similar testimony. Another physician, with 17 years' experience in the use of the machine, testified that he knew of nothing which could have produced this injury by this machine, and he knew of nothing which could have prevented it.

The way in which the conical cap, described as an inverted crown or sunflower, was placed near the plaintiff's head, the one suggested explanation of how the accident happened, was not shown to have been its cause. According to the plaintiff, that cap was placed within two or three inches from her head, instead of six or eight inches away, as at other times. The decrease in distance tended to increase the strength of the current communicated to the patient's head; but it had never been known to produce the effect here complained of before the accident. It was shown by uncontradicted and unimpeached testimony that the force of the charge or amount of electricity used or turned on the plaintiff in its usual operation would have been absolutely harmless, however the cap had been adjusted; that if the cap had been placed immediately on top of her head, it might have produced unpleasant sensations, but according to all known experience would not have injured the plaintiff. "Good practice requires that it should just clear the head; that is all." The patient could perceive the cone in front of her, so that, if there had been a spark, she would have seen it, but did not see it. Moreover, it is the universal experience that there might have been a spark without possible harm. It was also to be noted that it was the back of the head which was burned.

Nor was the absence of any assistant in the room with the plaintiff shown to have been a material factor. How such person, if present, could have prevented the harm, did not appear. If he had, for example, turned off the electricity

which operated the machine, its wheels would have revolved for some time from momentum. Nor was it suggested how any interposition could have been effective to have stopped the passage of the current, which the plaintiff said took more time than a second, but which must have been practically instantaneous. It appeared that the presence of a physician or an assistant was not required by good medical practice, nor that there was any reasonable anticipation of harm which suggested it. Neither the facts in the record nor any conjecture reasonably founded thereon tended to show that the failure of the physician to give the plaintiff any directions concerning the use of the machine, or to be present in person or by representative, was the proximate cause of the harm complained of.

The defendant had a right to rely on the presumption of the uniformity of the operation of natural forces. He was not bound to anticipate that a certain exceptional phenomenon, beyond the range of invariable and extensive experience, would happen. This accident was like a flash from a clear sky.

For such reasons Justice Jaggard says that he is compelled to conclude that the plaintiff suffered from the results of a physical force partially known and in some measure unknown, whose particular potentiality for harm could not have been reasonably foreseen, and for which the defendant was not responsible.

But the Supreme Court holds that the plaintiff made out a prima facie case of negligence. It says that her only expert testified that, if the cap were brought close to the head and there was volume enough, there would be a continuous spark and harm would result. His testimony to the effect that the distance the cap was placed from the plaintiff's head would determine whether a burn was likely to occur, together with the testimony of the plaintiff that it was not adjusted as on former occasions, and also the conduct of the defendant in leaving the plaintiff in the room unattended, while the machine was working, for the space of ten minutes, during which time the burn occurred, in connection with the other evidence in the case, was sufficient to take the question of the defendant's negligence to the jury, with the result already stated.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

July 30

- 1 Ventilation in Schools. W. A. Evans, Chicago.
- 2 Tendon Transfer for Correction of Spastic Hand Deformity. C. N. Dowd, New York.
- 3 *The Use of Vaccines, Serums and the Hiss Extract of Leukocytes in the Treatment of Eye, Ear, Nose and Throat Affections. J. G. Dwyer, New York.
- 4 A Simple Complement Fixation Technic in Syphilis. A. Fleming and F. J. Clemenger, London, Eng.
- 5 In What Way Can Laryngology Aid in Making the Diagnosis of Incipient Pulmonary Tuberculosis? W. Freudenthal, New York.
- 6 Pellagra in Illinois. W. F. Waugh, Chicago.
- 7 *A Useful Accessory in the Treatment of Varicose Ulcers. E. H. Pool, New York.
- 8 Urticaria Caused by the Sun's Rays. R. F. Ochs, New York.

3. Published in *Annals of Otolaryngology and Rhinology*, for June, 1910.

7. Treatment of Varicose Veins.—The procedure followed by Pool is as follows: At the time of the dressing, three times a week, the patient is made to lie on the back on the examining table with both legs elevated almost to a right angle and supported against the wall; the patient lies in this position for about 15 minutes. For the first few treatments massage is administered, stroking the limb toward the trunk. Before lowering the legs they are cleansed and dressed in an appropriate manner by strapping, medicinal applications, etc., and a muslin bandage is applied tightly and smoothly. The patient is instructed to resume this position three times a

day for fifteen minutes each time, and at other times if the bandage feels too tight. Pool says that no complaints have been made concerning the discomfort of the bandage and very few as to the tightness of the bandage. All the patients have expressed themselves from the outset as very much pleased with the results, stating that the legs are not only more comfortable, but show a more marked disposition to heal than by other methods. By this method the engorgement of the veins and lymphatics is prevented, and the edema diminished, as is evidenced by rapid diminution in the diameter of the legs after a brief period of treatment. Occlusion of the deep veins contraindicates the tight bandaging.

Pool emphasizes that the method is intended to supplement and not as a substitute for other procedures. It will simply expedite the response of the tissues to curative agents. Appropriate local treatment must be as assiduously pursued as when this method is not followed. The only departure from the usual routine here suggested is the detail of elevation which seems to enhance the effect of the bandaging.

New York Medical Journal

July 30

- 9 Lichen Planus. C. A. Kinch, New York.
- 10 Spondylitis Deformans. A. M. Crispin, New York.
- 11 The Borderland Between Medicine and Surgery. R. Hill, St. Louis.
- 12 Diagnosis and Treatment of Cancer of the Uterus. X. O. Werder, Pittsburg.
- 13 *The Spirit of Prophylaxis in Relation to Psychiatry. H. W. Wright, New York.
- 14 *A Method of Anesthetizing to be Employed in Operating on the Aged. J. H. Gleason, Manchester, N. H.
- 15 Nontraumatic Gingival Hemorrhage. H. Iloway, New York.
- 16 Does Internal Medication Tend to Abort or Cure Abscess and the Tendency Thereto? R. E. Coughlin, Brooklyn.

13. Prophylaxis in Psychiatry.—Summing up his conclusions of the future of psychiatry as a factor in the field of social service, Wright says that cooperative education is the key-stone in the arch of prophylaxis. Cooperation which is not merely abstract, in the nature of annual conferences and reports between one profession and another, but direct personal cooperation, such as is now obtainable between the worker in the charitable relief agencies and the physicians and nurses of hospital dispensaries; cooperation with the schools, the social settlements, charitable relief organizations, the courts and the clergy; education in the schools, from public platforms, through the direction of the public library and the press, and more directly in the clinic and the home in matters pertaining to mental hygiene, by those properly qualified in psychopathology.

If this can be accomplished, statistics of the etiology of insanity will not, as now, he says, represent much labor lost, except as resulting in a vast array of ambiguous uncorrelated statements, but more and more efficient labor with a clearer insight; while the benefit to the unfortunate patient and his relatives, which after all is the chief thing to consider, will be immeasurable by any statistical method.

14. Anesthesia in the Aged.—After having used a combined partial scopolamin anesthesia with local anesthesia, using 0.1 per cent. cocaine for six years, Gleason now uses partial scopolamin anesthesia, combined with local sterile water infiltration anesthesia in operating on the aged. He says that the aim should be to produce complete sensory paralysis of the part. Satisfactory results in the matter of producing regional anesthesia are dependent on the technic, and in order to become proficient in this, practice and experience are essential. The operator must be familiar with the anatomy of the parts, especially of the sensory nerves. The injections may be thus made with accuracy where they will be most beneficial and without unnecessary insertions of the needle. To gain control of the field it is necessary to block the nerves by depositing the sterile water around and in close proximity to them. Gleason places emphasis on the necessity of producing the condition of absolute nerve block in order to obtain the best results. Considerable fluid and some force must therefore be used.

The degree of anesthesia produced is governed by the accuracy with which the location of the nerves is determined,

the amount of fluid injected, and the degree of force used. It is in this particular that experience and the resulting judgment which is developed is most valuable. Gleason is convinced that by this method the management of surgical diseases in old people may be made comparatively safe, the mortality much reduced, and seemingly inoperable cases made operable and curable.

Boston Medical and Surgical Journal

July 28

- 17 Gynecologic Operations on Neurasthenics: Advantages and Disadvantages. E. Reynolds, Boston.
- 18 *Nephritis without Albumen. C. A. Howland, Fall River.
- 19 *Drugs in Practice. M. V. Tyrode, Boston.
- 20 The Sputum of Typhoid Patients as a Possible Source of Infection. E. S. Tenney, Fort Strong, Mass.
- 21 The Nasal Septum: Important Points in Anatomy and Submucous Resection. O. A. Lothrop, Boston.
- 22 *The Use of Tuberculin at the Sharon Sanatorium. W. A. Griffin, Sharon, Mass.

18. Nephritis Without Albumen.—That gross and severe lesions of the kidney may exist without albumen being present in the urine, or at least without being discernible by the methods ordinarily used in hospital and office work, is the conclusion at which Howland has arrived. From April 1 to December, 1909, he examined 550 specimens of urine. All urine was centrifuged from three to six minutes in an electric centrifuge giving from 1,000 to 1,800 revolutions to the minute. The sediment was removed by a thoroughly clean small pipette, the finger being held over the end and the point lowered until just over the sediment. The finger was then removed from the outer end sufficiently to allow only a small amount of the sediment to be admitted into the pipette, which was then held there by replacing the finger on the outer end. The sediment was placed on a glass slide and spread out over at least one square inch of surface, the slide being then placed under the microscope and held in position on a moving stage. The sediment was then examined under low power with closed diaphragm, and by means of the moving stage a systematic search of the whole field made; Heller's nitric acid test was used in all cases, with filtered urine, and the result tested before a dark background. As a rule, only morning specimens were used. The average amount was from 6 to 8 ounces, and the specimens were not over twelve hours old.

In many of the cases recorded numerous examinations were made and several methods employed. In cases in the acute stages which showed casts the urine was examined every few days, and in chronic conditions once or twice a week. Howland reports 21 cases which illustrate the presence of nephritis without the presence of albumen. All cases which showed granular in addition to hyalin casts are included, but not those cases which showed one or two hyalin casts only. Casts without albumen were found in a large proportion of those patients who were suffering from conditions such as appendicitis, typhoid, peritonitis, gangrene and evulsion of the scalp. In these patients the toxins incident to these troubles doubtless had a pathologic effect on the kidney without producing albumen.

19. Drugs in Practice.—Tyrode cites a few instances to show what can be done by the proper use of drugs. He praises the work done by the Council on Pharmacy and Chemistry, directing attention to its various publications which he urges practitioners of medicine to read. Speaking of new drugs, he says that there is no doubt that this flood of new drugs and combinations has its chief value in increasing the income of the manufacturers rather than advancing the art of therapeutics, for it is not so much a large number of a certain class of medicinal agents which we need, but rather a better understanding of the already known ones. It is true that we must place great hopes in the development of synthetic pharmacology, i. e., the building up of new compounds having certain desirable actions but not possessing certain undesirable ones at the same time. For instance, of the hundreds of newer coal tars as antipyretics and analgesics none have really surpassed some of the older compounds. The newer artificial morphin derivatives have not proved themselves as valuable as morphin and codein. The new bromid substitutes are not equal to potassium bromid.

Chloral still remains the most powerful hypnotic of the fatty acid series and is far superior in activity to any of its substitutes, and frequently not much more dangerous.

A physician who pretends to treat patients should know how to mix drugs in a prescription himself without the suggestions of a patent medicine house, and furthermore, if he desires any ready-made mixtures, he can find all sorts in the United States Pharmacopeia and National Formulary. Much better results at lower cost will be obtained by using home-made beef juice, scraped beef, etc., instead of the patented beef-preparations; likewise arrow-root, cornstarch, blanc-mange, barley-water, tapioca and rice will advantageously fill the place of the patented cereals, as the malted milks and infant foods. Instead of the patented fats, as various emulsions of cod-liver oil, and some particular frauds claiming to contain the active principles of cod-liver oil without the disagreeable fat, far better results may be reached by the employment of cream, buttermilk and olive oil. If one wishes to use alcoholic preparations, the ordinary good brands of wine, beer, ales and spirits will not only equal but excel any patent wines or malt extracts. The farcical use of uric acid solvents, as patented lithia waters and certain piperazin compounds, can be advantageously substituted by the use of large amounts of ordinary water with simple alkaline salts, as potassium citrate and sodium bicarbonate.

22. Tuberculin at the Sharon Sanatorium.—Tuberculin has been used at the Sharon Sanatorium for diagnostic purposes for 8 years, and as a therapeutic measure for 5 years. One hundred and nineteen patients have been tested by it, and 36 have had it as treatment. 44 have been discharged less than a year ago from the sanatorium and these are not considered in Griffin's report, which is intended to be, in part, a record of the present condition of those patients who have received tuberculin. This leaves, then, to be considered, 83 patients who have been tested and 28 who have been treated. Of those tested, 4 are known to have died, but only one of these died of tuberculosis. Griffin says that it is wise and safe to test all patients with signs in the chest who do not present tubercle bacilli in the sputa, using for this test the submucous method. If disease is found, a cure should be begun and the patient should be taught sanatorium methods. Neither does there seem any harm in using as high a dose as 10 mgm., since, when this dose is worked up to gradually, it does not cause a severe reaction. And, further, if a less dose were taken as the limit of use, some cases would fail to be detected which might need sanatorium treatment.

Treatment with tuberculin was begun rather experimentally on 3 patients who were moderately advanced and who had apparently come to a standstill in their improvement under general hygienic conditions. They seemed peculiarly fitted, therefore, to test the value of some treatment in addition to the regular sanatorium régime. These first three cases were so encouraging that each year more have been given tuberculin treatment, until at present there are ten having it, or nearly half the capacity of the sanatorium. In all cases either old tuberculin or bouillon filtrate have been used.

Of the 28 patients who have received the treatment, 6 have died. Two of these were far advanced at the start and were given injections at their own request. Three others who were not favorable cases were given tuberculin on the chance that it might help when all probability of help by ordinary means seemed futile. The sixth patient did well and left the sanatorium in good condition, dying about a year later of a sudden hemoptysis. Two others of the 28 returned to a poor environment, contrary to advice, and are not doing well. Two more have relapsed in spite of care. These last cases may improve in the future, and from what can be learned they are certainly not hopelessly sick. This leaves 18 who are in good condition. From his experience at Sharon Griffin feels that tuberculin when carefully given is not likely to do any harm and that it frequently is of great benefit, affecting a cure in some patients that would not be expected to do well under ordinary methods of treatment, and, finally, that no patients with frank tuberculosis should be denied the privilege of tuberculin treatment if they desire to have it.

Medical Fortnightly, St. Louis

July 11

- 23 Intestinal Obstruction from Appendiceal Adhesions. C. R. Dudley, St. Louis.
24 Problems of the Twentieth Century Physician. J. T. Woodward, Elkhart, Ind.

Lancet-Clinic, Cincinnati

July 23

- 25 Syphilitic and Cancerous Manifestations of the Oral Cavity from the Standpoint of the Dentist. C. J. Broeman, Cincinnati.
26 Pitfalls of the Anti-tuberculosis Crusade. C. G. Randall, Harveysburg, Ohio.
27 *Prolapse of the Urethra. M. A. Tate, Cincinnati.

27. **Prolapse of Urethra.**—A woman, aged 54, married some 20 years, never pregnant, gave a history of painful micturition and presence of protruding mass of indefinite induration at urethra. On examination a provisional diagnosis of a primary carcinoma of the urethra was made from the symptoms and the feel of the prolapsed mass. The family history of the patient was very good and positively free from tuberculosis and carcinoma. A wide removal of the mass was made and microscopic examination showed it to be an angioma. For a period of one week catheterization had to be practiced. The subsequent history after one week was that the patient had good control, urination was painless, and from appearance, recovery was complete.

Kentucky Medical Journal, Bowling Green

July

- 28 The Nurse. W. E. Senour, Bellevue.
29 Pellagra, with Exhibition of Case. R. L. Bone, Madisonville.
30 The Physician as the Public Benefactor. O. R. Kidd, Paducah.
31 The Puerperium or the Puerperal State: Derivation and Classification. W. B. Gossett, Louisville.
32 Hydatidiform Mole. C. C. Garr, Lexington.

Journal Experimental Medicine, New York

July

- 33 *The Cutaneous Trichophytin Reaction. S. Amberg, Baltimore.
34 *Latent Life of Arteries. A. Carrel, New York.
35 *Studies in Edema. M. S. Fleisher and L. Loeb, Philadelphia.
36 *Idem. M. S. Fleisher and L. Loeb, Philadelphia.
37 *The Origin, Distribution and Significance of Fuchsin Bodies, with Special Staining Technique. W. H. Brown, Madison, Wis.
38 An Extremely Pure Preparation of Ricin. C. W. Field, Louisville.
39 *Neurocytoma or Neuroblastoma, a Kind of Tumor not Generally Recognized. J. H. Wright, Boston.
40 Subcutaneous Reaction of Rabbits to Horse Serum. J. H. M. Know, W. L. Moss and G. L. Brown, Baltimore.

33. **Cutaneous Trichophytin Reaction.**—Patients suffering with trichophytia profunda respond to subcutaneous injections of culture filtrates of different strains of trichophyton, called trichophytin, with local and general reaction. The local reaction occurring at the point of injection gives rise to inflammation and infiltration. Besides this reaction at the point of injection, but less constantly and less pronounced, there occurs another local reaction in the diseased area. The general reaction consists of malaise, headache, muscular pains, rise of temperature, etc. Superficial cases of trichophytia do not give any reaction under the usual conditions. The analogy of this reaction with the tuberculin reaction in cases of tuberculosis is very striking. The trichophytin reaction is just as specific as the tuberculin reaction in the sense that it is not observed in healthy individuals or in patients suffering with diseases not due to an infection with hyphomycetes belonging to the trichophyton group. It is of interest that trichophytin prepared from different types of trichophyton derived from clinically different cases act alike, so that this reaction cannot be utilized for the differentiation of various trichophyton infections.

The total number vaccinated by Amberg with trichophytin was 131. Of these, 107 were vaccinated simultaneously with tuberculin, bouillon treated exactly like the tuberculin but without any bacteria, and trichophytin. The bouillon vaccinations were made in order to see whether it might give reaction by itself. In one case only, a doubtful reaction occurred, and this was at the point where the bouillon was inoculated. All the other cases showed a completely negative result. Besides these 107, ten were vaccinated with tuberculin and trichophytin, one with bouillon and trichophytin, and 13 only with trichophytin. The tuberculin vaccinations did not give any result not noted before. Amberg concludes

from his observations that there exists a far-reaching analogy between the cutaneous trichophytin reaction and the cutaneous tuberculin reaction. Both indicate that the organism is the seat of a definite infection or that it has passed through such infection. Both may persist for a long time after the active disease has come to rest, indicating that the infection has left the organism in a state of altered reactivity—allergy. Under certain conditions both may be of diagnostic value, but since the reaction persists for a long time after the infection has passed, the negative reaction may be of greater value, excluding the existence of a specific infection. The analogy of the trichophytin reaction with the tuberculin reaction is not only limited to the obvious clinical manifestations, but, as in the tuberculin reaction, it can be shown that with uniform concentration of antibody the intensity of the reaction is dependent on the concentration of the trichophytin. A tentative explanation of the halo formation is offered by Amberg, based on a rapidly renewed formation of antibody stimulated probably by the entrance of a small amount of allergen into the general circulation.

34. **Latent Life of Arteries.**—Carrel has found that when a segment of artery, killed by heat, formalin or glycerin, is transplanted, it undergoes a rapid degeneration. Its muscle fibers disappear while the tissue of the host reacts by building a new wall of connective tissue. When the transplanted vessel has been preserved in a condition of latent life, no degeneration of the wall occurs, or the wall undergoes only partial degeneration. The muscle fibers can keep their normal appearance, even for a long time after operation. It is, therefore, demonstrated that arteries can be preserved outside of the body in a condition of unmanifested actual life. The best method of preservation consists of placing the vessels, immersed in petrolatum, in an ice-box, the temperature of which is slightly above the freezing point. From a surgical standpoint, the transplantation of preserved vessels can be used with some safety. When the arteries were kept in defibrinated blood or petrolatum and in cold storage, the proportion of positive results was 75 and 80 per cent., and this can probably be increased.

35. **Studies in Edema.**—In order to determine further the factors which influence absorption from the peritoneal cavity, Fleisher and Loeb studied the absorption in nephrectomized animals and in animals injected with uranium nitrate, 20 and 72 hours after injection. In the experiments recorded the influence of the osmotic pressure of the blood on absorption of fluid from the peritoneal cavity becomes apparent. Nephrectomy, removal of the adrenals, and other operations increase the osmotic pressure of the cavity. On the other hand, ether narcosis, at the period at which the authors tested its influence, causes neither an increase of osmotic pressure of the blood nor an increase in the absorption of fluid from the peritoneal cavity. The increased osmotic pressure and increased absorption of fluid in nephrectomized animals is to a great extent not a specific effect of the removal of the kidneys, but approximately the same conditions can be observed after incisions of the skin and muscles. After poisoning with uranium nitrate and in cases of peritonitis, complicating factors come into play, and under such conditions the absorption from the peritoneal cavity is not increased, notwithstanding the higher osmotic pressure of the blood.

In conditions in which the osmotic pressure of the blood is very high before the injection of sodium chlorid solution into the peritoneal cavity, nephrectomized rabbits or rabbits injected with uranium nitrate 3 days previously, adrenalin causes no increase, or only a very slight one, in the absorption of peritoneal fluid. On the other hand, one day after the injection of the uranium nitrate the osmotic pressure of the blood is only slightly increased before the injection of the sodium chlorid solution into the peritoneal cavity, and here adrenalin causes a marked increase in absorption of fluid from the peritoneal cavity. In animals injected with uranium nitrate the retention of sodium chlorid and other osmotically active substances in the blood is not entirely due to interference with the functions of the kidney. This retention may be explained either by an inability of the

tissues to bind the sodium chlorid and other osmotically active substances or to a diminished permeability of the blood vessels for such substances.

While in nephrectomized animals the elimination of sodium chlorid from the peritoneal cavity and also from the blood is increased, in animals injected with uranium nitrate such an elimination is diminished. This increase in the sodium chlorid content of the peritoneal fluid in animals treated with uranium nitrate is accompanied by a decrease in the diffusion of other osmotically active substances into the peritoneal cavity. While in nephrectomized animals and in animals injected with uranium nitrate one day previously, adrenalin causes a diminution of the fluid retained in the blood-vessels similar to the diminution noted in normal animals, adrenalin no longer exerts such an effort at a later stage of the uranium nitrate poisoning. At this period after the administration of uranium nitrate, the retention of fluid in the blood vessels is apparently equal in experiments with and without the injection of adrenalin, and following the absorption of fluid from the peritoneal cavity, the retention of fluid in the blood vessels in the uranium nitrate animals is increased comparatively to a greater extent than in normal animals.

36. *Id.*—In this paper Fleisher and Loeb record their observations on the influence of caffein on absorption from the peritoneal cavity and the influence of diuresis in edema. In normal animals the injection of caffein slightly diminishes the absorption of fluid from the peritoneal cavity, in spite of the fact that the amount of fluid and sodium chlorid eliminated through the kidneys is markedly increased. The lessened absorption of fluid is due to a slight lowering of the osmotic pressure of the blood. In nephrectomized animals caffein increases the absorption of fluid from the peritoneal cavity; the increase in absorption is greater in nephrectomized animals which received caffein than in nephrectomized animals which did not receive this substance, and it is due to additive increase in the osmotic pressure of the blood. In animals injected with uranium nitrate three days previously, caffein diminishes the absorption of fluid from the peritoneal cavity, notwithstanding the high osmotic pressure of the blood observed in such animals.

At the time of the conclusion of the absorption experiments, the amount of fluid retained in the vessels was found to be diminished in each series in which caffein was used. Only in certain cases can this be due to the increased amount of fluid leaving the blood vessels through the kidneys; in other cases it can only be due to a movement of water from the blood vessels into the tissues caused by the injection of caffein. In normal animals, in nephrectomized animals and in animals in which an operation not directly affecting the kidneys had been performed, caffein caused an absolute and relative increase in the elimination of sodium chlorid from the peritoneal fluid, as a result of which the remaining peritoneal fluid shows a lessened content of sodium chlorid. Caffein causes also a decrease in the sodium chlorid content of the blood.

Summarizing all experiments in which they studied the absorption from the peritoneal cavity, Fleisher and Loeb state that changes in the osmotic pressure of the blood represent the principal factor in explaining the variations in the rate of absorption of fluid from the peritoneal cavity. There exists no direct relation between an increase in the rate of absorption of fluid from the peritoneal cavity and an increase in the amount of urine secreted. If it should be found that even at a period following the injection of caffein, later than that at which we have studied the absorption, a rise of the osmotic pressure of the blood does not appear, then we may state that the diminution in the amount of edema in the body cavities resulting from the administration of caffein is entirely due to an inhibition of the production of edema and not to an increased absorption of fluid from the serous body cavities.

37. **Fuchsin Bodies.**—The material used by Brown included over 200 distinct specimens representing nearly all the organs of the body and a great variety of pathologic conditions as well as some normal tissues. This material was selected

partly at random and partly from lesions in which Brown felt sure of finding fuchsin bodies. He believes that he is justified in assuming that the fuchsin body represents a type of body subject to wide variations in morphology and in staining reaction. Though more frequently associated with plasma cells than with any other cell type, these bodies may and do occur in a great variety of cells, and also within blood vessels; some of these bodies are true hyalin thrombi, while others are due to autolytic changes in the red blood corpuscles. Fuchsin bodies are most numerous in granulation tissue and lymphoid areas. In the former, they follow closely the distribution of capillaries and show a parallel with the changes in the extravascular and intravascular red blood corpuscles. The number and type of fuchsin bodies in tissues can be influenced by methods of fixation, the number of typical bodies being inversely proportional to the rapidity and degree of fixation of the red blood cells. The type of body found after the best fixation is not, as a rule, what is considered the typical form, but an irregular fragmentary type or the fuchsinophilic granular form. The identity in staining reaction, the constant association with changes in red blood corpuscles, the relation to distribution of capillaries in granulation tissues, the occurrence in hemorrhagic lesions associated with pigment, the intravascular occurrence, and, finally, the close relation to pigment deposits, all indicate conclusively that fuchsin bodies arise from red blood corpuscles.

No theory of origin from plasma cells, or other granular cells, offers an adequate explanation for the origin of fuchsin bodies, nor can any theory prove adequate which does not take into account the red blood corpuscles. The peculiar association of plasma cells with fuchsin bodies and hemosiderin seems explainable on the assumption that the plasma cell in such instances is the active factor in a metabolic process, the fuchsin body representing a stage in the metabolism of hemoglobin by an intracellular enzyme, and hemosiderin, one of the products of the process.

39. **Neurocytoma or Neuroblastoma.**—Wright calls attention to a group of tumors the nature of which he believes has hitherto escaped general recognition. These tumors are rich in cells which may vary much in size and shape. They may be perverted by connective tissue by which the cells are arranged in more or less definite alveoli. Blood vessels accompanied by connective tissue are also present. The essential cells of the tumor are considered to be more or less undifferentiated nerve cells or neurocytes or neuroblasts, and hence the names neurocytoma and neuroblastoma. Wright cites briefly 12 cases seen by him or recorded in the literature.

Iowa Medical Journal, Des Moines

July

- 41 The Present Status of Opsonic Therapy. J. C. Ohlmacher, Independence.
- 42 Management of Severe Burns of the Eyes. H. C. Langworthy, Dubuque.
- 43 Epilepsy. W. Pfannebecker, Sigourney.

Colorado Medicine, Denver

July

- 44 The Sanatorium in its Application to Tuberculosis. S. G. Bonney, Denver.
- 45 Intubation of the Larynx, with Suggestions Regarding Anaphylaxis. F. E. Waxham, Denver.
- 46 Acute Yellow Atrophy of Liver, Report of Case—Recovery. F. W. Kenney, Denver.
- 47 Diagnosis of Gall-stone Disease. J. N. Hall, Denver.
- 48 Intestinal Obstruction. F. Finney, La Junta.

New York State Journal of Medicine, New York

July

- 50 Status Thymo Lymphaticus and its Relation to Sudden Death. G. H. Cocks, New York City.
- 51 Experimental Poliomyelitis. S. Flexner, New York.
- 52 The Vestibular Nerve in Relation to Equilibrium and Its Disturbances. P. Fridenberg, New York.
- 53 Traumatic Esophageal Stricture in a Two-year-old Child with Radiograph. G. W. Ross, Port Ewen, N. Y.
- 54 The Sanitation of Summer Resorts. C. E. Low, Pulaski.
- 55 The Duty of the Medical Profession Toward the Cancer Problem. G. D. Gregor, Watertown.
- 56 Acute Suppurative Otitis Media. B. A. Richards, Rochester.
- 57 Paroxysmal Tachycardia. W. T. Mulligan, Rochester.
- 58 The Value of the "Negri Bodies" in Diagnosis of Hydrophobia. S. R. Klein, New York.
- 59 The Hunger-Strike and a Tube-fed Case. A. J. Capron, Kings Park.

Providence Medical Journal

July

- 60 Meningitis with Special Reference to the Danger of Administration of the Serum. F. T. Fulton, Providence.
 61 Value of Lumbar Puncture in the Diagnosis and Treatment of Infectious Diseases of Childhood. H. G. Calder, Providence.
 62 Cretinism. N. L. Niles, Providence.
 63 Influence of Progressive Medicine on the Law. W. L. Chapman, Providence.

Journal of Nervous and Mental Disease, Lancaster, Pa.

July

- 64 *Deafness Due to Lesions in the Brain. M. A. Starr, New York.
 65 *Friedreich's Ataxia. W. G. Spiller, Philadelphia.

64. Deafness Due to Lesions in the Brain.—Owing to the course of the acoustic tract, Starr says it is to be expected that lesions in the pons Varolii and in the tegmentum of the crura cerebri which affect the lemniscus should produce deafness, but cases of this kind appear to be extremely rare. He reports a case, one of an apoplectic attack characterized by alternating paralysis of motion and of sensation, by dysarthria, and by total deafness in both ears. The patient, whose arteries had become markedly atheromatous, from a long-continued abuse of alcohol, had a slight attack of right hemiplegia and aphasia in the year 1900, when 42 years old. The symptoms rapidly subsided and as the attack was not attended by loss of consciousness, it seemed probable that it was due to a thrombosis in a small vessel, leaving a focus of sclerosis of small extent and without permanent effects.

In June, 1901, a second apoplectic attack, however, occurred, more severe in character, the permanent symptoms of which remained until her death in 1909. In this attack she became unconscious and remained so for two days, after which time it was apparent that the right side of her face and the left arm and leg were paralyzed. Sensation in the right side of the face was markedly impaired to touch, temperature and pain, and the same loss of sensation was apparent in the left arm and left leg and on the left side of the body as high as the collar. In addition to the alternating paralysis and anesthesia, there was a very marked loss of muscular sense in all four extremities, being more marked on the left side. The patient was unable to swallow and choked at any attempt, so that she was fed for a month with difficulty. She was entirely incapable of pronouncing words distinctly and as time went on, this difficulty increased, being intensified by her total deafness. From the day of the attack until her death she was totally deaf in both ears. The deafness was complete for all sounds, high or low, and there was no bone conduction of sound. There was no disease of the ears. This condition was present for eight years. There was apparently no return of hearing whatever.

65. Abstracted in THE JOURNAL, July 16, 1910, p. 247.

Washington Medical Annals

July

- 66 Paranoia. D. P. Hickling, Washington, D. C.
 67 Aphasia and Some Other Diseases of Speech. T. A. Williams, Washington.
 68 Laënnec and the Stethoscope. J. D. Morgan and D. S. Lamb, Washington.
 69 Bone Grafting and Osteoplasty. E. P. Magruder, Washington, D. C.
 70 Surgical Treatment of Retrodisplacement of the Uterus: Special Reference to Method of Shortening the Round Ligament. Washington, D. C.
 71 *Fracture of the . . . of Choice Demonstrated. E. P. . . D. C.
 72 Acute Pancreatitis. G. T. Vaughan, Washington, D. C.

71. Abstracted in THE JOURNAL, June 4, 1910, p. 1843.

Mississippi Medical Monthly, Vicksburg

July

- 73 *How Should the Health of the Future Wives and Mothers be Safe-guarded? J. W. Young, Grenada.
 74 *Obstacles in the Surgical Treatment of Gynecologic Cases. H. N. Page, University.
 75 *The State's Care of the Tuberculous Poor. J. R. Tackett, Meridian.
 76 *Why Vital Statistics? J. W. Gray, Clarksdale.

73. to 76. Abstracted in THE JOURNAL, May 14, 1910, pp. 1632, 1633.

Archives of Pediatrics, New York

July

- 77 Experimental Epidemic Poliomyelitis and its Relation to Human Beings. S. Flexner, New York.
 78 *The First Heart Sound in Children. F. Forchheimer, Cincinnati.
 79 The Hygienic Care and Management of Nervous Children. W. B. Pritchard, New York.
 80 *Biologic Variations in the Higher Cerebral Centers Causing Retardation. E. R. McCready, Pittsburg.
 81 Problems of Nutrition in Early Life. F. S. Meara, New York.
 82 *Retained Intubation Tube (Second Intubation): Diphtheritic Paralysis: Recovery. W. P. Northrup, New York.

78. 82. Abstracted in THE JOURNAL, June 11, 1910, pp. 1906, 1907.

80. Biologic Variations.—Clinical evidence, says McCready, would seem to warrant the assumption that there are a large number of children retarded in their mental development on account of insufficient activity caused by biologic variations of the special centers making up the zone of language. These children are likely to be considered feeble-minded and they may eventually become so unless their condition is recognized and proper treatment instituted.

Annals of Otology, Rhinology and Laryngology, St. Louis

June

- 83 Some of the Newer Therapeutic Measures in Ear, Nose and Throat Affections. J. C. Beck, Chicago.
 84 Brain Abscess in the Frontal Lobe, Secondary to Ethmoiditis and Frontal Sinusitis. J. McCoy, New York.
 85 The Pathologic Conditions of the Nose and Throat; Special Reference to the Tubal Regions, Associated with Chronic Catarrhal Otitis Media. H. Hays, New York.
 86 The Classification of Middle and Internal Diseases. S. J. Kopetsky, New York.
 87 Obstructive Stenosis of the Larynx Following Diphtheria. D. J. G. Wishart, Toronto.
 88 Laboratory Methods as Aids to Diagnosis of Nose, Throat and Ear Affections. J. C. Beck, Chicago.
 89 Atresia of the External Auditory Canal. E. A. Forsyth, Buffalo.
 90 X-ray Technic in the Treatment of Laryngeal Papillomata in Children. A. L. Gray, Richmond.
 91 Removal of a Rhinestone from the Middle Ear of a Child: Exhibition of Specimen. C. F. Theisen, Albany.
 92 Thrombosis of the Jugular Bulb without Apparent Involvement of the Lateral Sinus; Unusual Blood Count; Metastasis; Paralysis of External Rectus Oculi. J. R. Page, New York.
 93 The Serodiagnosis of Syphilis in its Relation to Disease of the Ear. E. P. Fowler, New York.
 94 Thrombosis of the Lateral Sinus: When to Operate and What Type of Operation to Choose. E. A. Crockett, Boston.
 95 Cerebral . . . in Connection with Chronic Middle Ear . . . Blackwell, New York.
 96 Latent . . . Epidural Abscess. A. Braun, New York.
 97 Lateral Sinus Thrombosis Treated, Postoperatively, with Hiss' Extract of Leukocytes. S. McCullagh, New York.
 98 Use of Vaccines, Serums and the Hiss Extract of Leukocytes in the Treatment of Eye, Ear, Nose and Throat Infections. J. G. Dwyer, New York.

Northwestern Medicine, Seattle

July

- 99 *Hemorrhage from the Kidney: Significance and Treatment. P. M. Pilcher, Brooklyn.
 100 Epibulbar Sarcoma. C. A. Veasy, Spokane, Wash.
 101 Indigestion. A. . . . K. Winslow, Seattle.
 102 *Diagnosis of Chro Portland, Ore.
 103 Acute Colitis in Hip and Extending
 104 Pain in the Low Mont.
 Down the Thig
 105 The Open or Surgical Treatment of Fractures. G. P. Thomas, Spokane.

99. Published in the *Boston Medical and Surgical Journal*, July 7, and abstracted in THE JOURNAL, July 23, 1910, p. 347. Also published in the *Long Island Medical Journal*, July, 1910.

102. Chronic Stomach Troubles.—Winslow emphasizes the following points: 1. That chronic so-called stomach troubles are mostly not stomach troubles; 2, that the importance of laboratory findings of the gastric contents in so-called stomach troubles is greatly exaggerated; 3, that a careful clinical history gives the clue in most cases and is the chief aid in diagnosis of so-called stomach troubles; 4, that, excluding the neuroses, the so-called chronic stomach troubles resolve themselves commonly into chronic gall-bladder disease, chronic appendicitis, duodenal ulcer, gastric ulcer and cancer. There is probably about 25 per cent. of chronic stomach troubles in which no one can make a positive diagnosis. The chief object will then be to decide whether the case warrants surgical exploration. If exploration of the abdominal and pelvic organs were done in every case where the abdomen was opened for chronic trouble, there would be less operating on the same patient and less neurosis.

Maryland Medical Journal, Baltimore

July

- 106 Mental Characteristics of Chronic Epilepsy. E. Jones, Toronto.
- 107 Lactic Bacillus Planting. A. K. Bond, Baltimore.
- 108 Oral Hygiene in Relation to Tuberculosis. B. B. Bennett, Baltimore.
- 109 Sir James Young Simpson. H. M. Cohen, Baltimore.
- 110 Early Diagnosis of Syphilis. H. W. Stoner, Baltimore.

Journal of the Kansas Medical Society

June

- 111 Public's Knowledge of the Medical Profession. O. J. Furst, Peabody.
- 112 Effects of Modern College Athletics on the Heart. W. M. McVey, Topeka.
- 113 Hyperemia. N. C. Speer, Osawatimole.
- 114 Significance of Uterine Hemorrhage in Surgical Diagnosis. H. L. Snyder and L. A. Jacobus, Winfield.

Journal Oklahoma State Medical Association, Muskogee

July

- 115 Insanity of the Puerperium—Causation. J. W. Duke, Guthrie.
- 116 Observations in Connection with Appendicitis. L. Long, McAlester.
- 117 Laryngeal Diphtheria. A. B. Montgomery, Muskogee.
- 118 Steps Toward the Prevention of Postoperative Exudates. W. E. Dicken, Oklahoma City.
- 119 Auto-intoxication. L. S. Willour, Atoka.
- 120 Pneumococcus in the Eye. J. H. Barnes, Enid.
- 121 Medical Ethics. A. N. Lerskov, Claremore.
- 122 Chronic Nephritis: Associated Circulatory Changes. A. W. White, Oklahoma City.
- 123 Elimination of Sectional Lines. J. S. McAllister, Sapulpa.

Western Medical Review, Omaha

July

- 124 *Chorio-epithelioma. E. C. Henry, Omaha.
- 125 Principles of Surgery in Emergency Cases. A. C. Stokes, Omaha.
- 126 Some Critics of the Medical Profession. H. W. Orr, Lincoln.
- 127 Recent Developments in Medical Education. R. H. Wolcott, Lincoln.

124. Chorio-epithelioma.—Henry reports 3 cases. Operation was performed in each case, but owing to advanced disease, one of the patients died. In this case examination showed a uterus only slightly enlarged, and in about normal position. Situated on the anterior and posterior wall of the vault of the vagina were two vascular soft tumors about the size of a pigeon's egg, so located that the opinion was expressed that one was transplanted from the other. The woman was anemic from loss of blood which had been going on for two or three weeks. The primary tumor was found in the body of the uterus, not so large as the two secondary growths. The second patient had a small tumor the size of a large hazelnut in the uterine wall, apparently of malignant structure. The microscope showed it to be chorio-epithelioma. The mucous membrane and the rest of the body appeared to be normal. The patient made a good recovery. The third patient was supposed to be 3 months pregnant when hemorrhage began and she was apparently threatened with a miscarriage. On account of her hemorrhages, albumin in the urine, and rapid heart, the consultant advised emptying of the uterus. On examination he found a delicate young woman with a pulse of 140, temperature 101, but on putting his hands on the abdomen he found the uterus extending to the umbilicus, vagina filled with blood clots and os patulous. On thoroughly dilating and passing in a Thomas spoon a great quantity of cysts began to come away. Eight weeks later her pulse became rapid again, temperature had gone up to 101 and 102, but a blood count did not show the septic factor and was accordingly ruled out. On curetting the uterus to clear up the diagnosis, such a furious hemorrhage set in that Henry tamponed the uterus. The curetting showed a malignant condition and three days later, after direct transfusion, the uterus was rapidly removed. The tumor had penetrated the walls of the uterus and was just starting into the broad ligament. A year later the woman was in perfect health.

Louisville Monthly Journal of Medicine and Surgery

July

- 128 The Doctor and Habit-forming Drugs. G. L. Servoss, Fairview, Nev.
- 129 Medical Milk Commissions and Bovine Tuberculosis. E. C. Schroeder, Bethesda, Md.
- 130 Angioneurotic Edema. J. E. Hays, Louisville.
- 131 "Just Mumps." S. J. Meyers, Louisville.

New Mexico Medical Journal, East Las Vegas

July

- 132 Myxedematous Degeneration of the Chorionic Villi. T. C. Sexton, Las Cruces.
- 133 What the County Medical Society May do to Prevent the Spread of Tuberculosis. T. W. Laws, Lincoln.
- 134 Surgery of the Knee Joint. W. G. Hope, Albuquerque.
- 135 Diagnosis of Pelvic Inflammation. H. A. Ingalls, Roswell.

Vermont Medical Monthly, Burlington

July

- 136 Cancer of the Uterus. H. C. Tinkham, Burlington.
- 137 The Physician and Quarantine. J. W. Jackson, Barre.
- 138 Appendicitis—When to Operate. J. P. Gifford, Randolph.

Therapeutic Gazette, Detroit

July

- 139 *Difference Between Systolic Pressure in the Arm and in the Leg in Aortic Regurgitation. H. A. Hare, Philadelphia.
- 140 Plaster of Paris Dressings for Fractures of the Shaft of the Humerus. S. W. Moorhead, Philadelphia.
- 141 Osteopathy: Does it Offer Anything New? N. S. Yawger, Philadelphia.
- 142 Placenta Prævia. W. H. Wells, Philadelphia.

139. Difference between Systolic Pressure in Arm and Leg.—The results which Hare has obtained in making comparative studies of the blood pressure in the arm and leg of cases of aortic regurgitation have not only confirmed Hill's conclusions that in aortic regurgitation there is a remarkable difference in systolic pressure found in the arm and leg, but have given greater variations than he records, and Hare is prepared to agree with Hill that this extraordinary difference between the systolic pressure in the arm and leg is a pathognomonic sign of aortic incompetence, as it is not present in other valvular lesions. In one of Hare's cases this method of reaching a diagnosis of aortic regurgitation proved most helpful because the ordinary characteristic symptoms of this disease were not well marked. The pulse was somewhat triphammer in character but not sufficiently so to be typical. Auscultation revealed a double murmur, very feeble in character, and equally well heard in the mitral and aortic areas. There was a systolic murmur transmitted into the carotid, but the diastolic murmur could not be separated from that of mitral stenosis or Flint's murmur. In this case it was found that the systolic pressure in the arms was 160 and in the legs 260. On taking the patient where there was a good light, Quincke's capillary pulse was found in the skin and in the lips. In another case the arm pressure was 170; the leg pressure 265.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London.

July 16

- 1 Epilepsy. W. A. Turner.
- 2 *Behavior of the Leukocytes in Infection and Immunity. F. B. Andrewes.
- 3 Aspects of Disease. W. Haward.
- 4 Administrative Control of Pulmonary Phthisis in Scotland. W. L. Mackenzie.
- 5 Preventive Measures and the Administrative Control of Tuberculosis. E. W. Hope.
- 6 Idem. H. Scurfield.
- 7 Pulmonary Tuberculosis as a Problem of Administration: The Economics of Phthisis. A. K. Chalmers.
- 8 Recruiting Officer's Notes on the Prevalence of Certain Diseases in Egypt. G. W. G. Hughes.

2. Leukocytes in Infection and Immunity.—The observations made by Andrewes on the bone marrow of the rabbit in staphylococcal infections are in complete accord with those of Roger and Josué and of Muir. He employed the intravenous route of infection, and when death occurred rapidly, in 40 hours or less, from acute septicemia, he found no leukoblastic reaction in the marrow, but rather a depletion of the tissue in respect of its neutrophile cells. These are the cases which show a circulatory leukopenia as the end approaches. But in every case in which life has been prolonged for four days or more, he found a neutrophile leukoblastic reaction in the marrow; these are the patients who show during life a persistent, if variable, polynuclear leukocytosis, and after death, local foci of tissue infection. He further found that the longer the animal survives the more pronounced is the neutrophile transformation of the marrow.

From these facts, Andrewes draws two conclusions. It would seem that the "plant" for the production of polynuclear leukocytes present in normal marrow, though it may suffice for a high transitory leukocytosis, is quite inadequate for the maintenance of high leukocytosis. In presence of a grave pyogenic infection steps are at once taken to increase the plant necessary to keep up a due supply. In spite of this the patient or the animal may die, but it is permissible to assume that in every case showing a sustained circulatory leukocytosis this marrow reaction is present and that when, as is commonly the case, recovery occurs, the reaction has been part, and, he thinks, a very important part, of the machinery by which the body has overcome the infection. The prognostic value of the leukocyte count in such human diseases as pneumonia rests on a definite anatomic basis.

The second conclusion is that of the vast importance of the polynuclear leukocyte in the bodily struggle against invasion by the pyogenic cocci. The immediate steps which seem to be taken to provide an increased supply of these cells in presence of such invasion, and the disastrous results which seem to attend failure of the supply, can bear only one interpretation, according to Andrewes. If, in any given bacterial infection, a sustained polynuclear leukocytosis is found during life, and, after death, a neutrophile leukoblastic reaction in the bone marrow, we are fairly entitled to conclude that the defense of the body against the microbe in question, rests largely, perhaps entirely, with the polynuclear leukocytosis, and is probably phagocytic in essence. In a rabbit which had been three times treated intravenously with a vaccine of *Streptococcus fecalis*, and which died for no apparent reason, Andrewes found 315,000 neutrophile cells per cubic millimeter of bone marrow, but in another animal killed after similar treatment the number was only 138,000, and in a third, which died much wasted, the number was 128,100. In an animal killed after two intravenous inoculations with *Micrococcus citreus agilis*, Andrewes found no leukoblastic reaction in the marrow; the neutrophile count was 134,000 per cubic millimeter. He says that the body reacts differently according to the species of bacterium by which it is invaded or against which it is vaccinated.

The clinical facts in relation to different human infective diseases have long suggested this and the more closely the cytologic changes in the blood and the humoral properties of the serum are studied, the more apparent is the fact that the body has several means of defense. There is a great difference between these infections and those due to the pyogenic cocci as regards the changes seen in the blood and in the bone marrow. In experimental rabbits treated with intravenous doses of living and dead colon bacilli, Gärtner's bacillus and *B. typhosus*, Andrewes regularly noted a polynuclear leukocytosis, often a high one, following the anaphylactic leukopenia, but it is a transient affair, and he believes it to be a reaction following the leukopenia, rather than a serious attempt at phagocytic defense. He has never found a leukoblastic reaction in the marrow of animals thus treated. The pyogenic cocci, the members of the colon bacillus group, and the microbes of tubercle and probably also of syphilis, are examples of micro-organisms against which the body seems to defend itself in very different fashion. So far as the polynuclear leukocytes are concerned, Andrewes concludes that these cells are of fundamental importance in defense against the pyogenic cocci, of merely secondary importance in the case of the colon group, while in tubercle and syphilis they seem to play almost no part at all.

British Medical Journal, London

July 16

- 9 *True Aim of a United Medical Profession and the Handicap of the Trade Union Bogey. L. E. Shaw.
- 10 Principles of Practice in Relation to Our Patients. R. J. Pye-Smith.
- 11 Fifty Years of Medical and Surgical Progress and the Part Played in it by Experimental Research. C. H. Allfrey.
- 12 After Ten Years. W. H. Maidlow.
- 13 *The Country Practitioner of To-day. S. H. Puckle.
- 14 Working of the Workmen's Compensation Act of 1906. W. H. B. Brook.
- 15 Doctor and the Public. S. N. Scott.
- 16 Future Prospects and Position of the Medical Profession Under Poor Law Commission Reports and Proposals and a Public Medical Service. M. Dewar.

9. A United Medical Profession.—Medical education is discussed briefly by Shaw. He suggests the creation by the British Medical Association of a section dealing with the subject of medical education. Here, he says, there would meet together on equal grounds, as members of the profession, the teachers and the taught, and much might be done toward forming a sound opinion on certain principles of education. The taught might bring home to the teachers that teaching is an art that might well be learnt by those who propose to practice it. The medical teachers' faith in examination as a means of education might in such open discussion be advantageously shaken.

13. The Country Practitioner of To-day.—Puckle pleads for hearty and unselfish cooperation and combination within our ranks as being the only way of successfully confronting the numerous forces attacking us from without. It is useless, he says, for a few to make a stand against encroachment on their right to a place in the sun at the hands of private patients and public bodies, if within their ranks are to be found those who are willing to accept what others with the true interests of the profession at heart indignantly reject. It is no use presenting a bold front to the common foe if you know that you will probably be stabbed in the back by a so-called friend.

We must live, and, when all is said, the laborer is worthy of his hire. Surely, therefore, in the common interest, it should be possible for neighboring colleagues to put a stop to underselling, by mutually agreeing on a scale of charges suitable to each district, and based on occupation and mileage, and loyally keeping to it. That is one line our combination might take, and though more or less a sordid detail, is none the less an important one. That "union is strength" has been true for all ages, and now that the struggle for existence is daily growing fiercer has passed beyond the region of platitudes.

Medical Press and Circular, London

July 6

- 17 Intracranial Tumors. J. Taylor.
- 18 Prevention of Mortality after Pelvic Operations. H. Mac-
- 19 J. Veit.
- 20 stion and Persuasion—The Im- T. A. Williams.

July 13

- 21 Malta Fever. F. M. Sandwith.
- 22 *Eighty Consecutive Cases of Wasting Infants Fed on Undiluted Citrated Milk. F. Longmead.
- 23 Treatment of Placenta Prævia (concluded). J. Veit.
- 24 The Heart in Pulmonary Tuberculosis. J. Hay.

22. Abstracted in THE JOURNAL, July 9, 1910, p. 150.

Clinical Journal, London

July 6

- 25 Carcinoma of the Rectum Treated by the Abdomino-perineal Method. H. J. Waring.
- 26 Asthma. A. F. Hertz.
- 27 Femoral Ruptures and Their Management. C. B. Lockwood.
- 28 Pleurisy. W. C. Bosanquet.
- 29 Lupus Erythematosus. G. Pernet.

Journal of Tropical Medicine and Hygiene, London

July 1

- 30 *Etiology of Blackwater Fever. P. F. Foran.
- 31 Diptera of the Congo-Zambesi Watershed. A. Y. Massey.

30. Blackwater Fever.—In practically all the cases Foran examined, small active coccus-like bodies or "blood dust" were to be seen. They varied much in number, but in two cases, both young native children, with anemia and enlargement of the spleen, they were present in such extraordinary numbers that, on looking at the fresh film, the plasma seemed to be seething with them. On staining, however, there was no trace of them. Foran found this parasite in many young native children and in a fair number of Europeans. Of the former, some were suffering or had suffered from symptoms closely resembling mild attacks of blackwater; and of the latter, two had had blackwater, and the others were suffering from anemia and irregular fever. Some of the cases appeared to be purely infections; others had undoubtedly a malarial element. In a few young children with acute symptoms, he found remarkably rich infections, 1 in 3 or 1 in 4 of the

red cells invaded. In others, and in the Europeans, the parasite appeared to be latent, with only a few free forms and still fewer intracorpuscular.

Foran suggests that the parasite described is a piroplasma, and that it is the cause of blackwater fever. The intracorpuscular forms closely resemble malaria, and may have been confounded with it. During the attacks of blackwater fever in Europeans the parasites may not appear in the peripheral circulation at all; they may congregate and multiply chiefly in the organs, and there invade the red cells, and these invaded cells, being, perhaps, especially susceptible, may get broken down before reaching the peripheral capillaries. The absence of pigment would render it difficult to demonstrate the presence of the parasite in sections.

Dublin Journal of Medical Science

July

- 32 Dyspepsia. B. G. A. Moynihan.
33 Responsibilities in the Prevention of Inherited Syphilis. S. Sheil.
34 *The Rotunda Hospital. E. H. Tweedy, B. A. H. Solomons and J. R. Freeland.

34. Rotunda Hospital.—During the year 1908-09 there were 2,369 admissions in the maternity wards of the Rotunda Hospital and 2,045 deliveries, which is 15 less than the previous year. Tweedy's cases of eclampsia up to date number 73. This is not only the largest series of cases published by one observer in Ireland, but surpasses the combined number of his two predecessors. A close inspection of former reports will, according to Tweedy, demonstrate the fact, which has been repeatedly noted by other observers, that the incidence of eclampsia is apparently in the nature of an epidemic. This fact is worthy of more than a passing notice, for it is possible that it may serve as a clue to the recognition of the cause of the disease.

In respect to contracted pelves, Tweedy enters a plea for their estimation in inches rather than centimeters. Thus, if starting with $4\frac{1}{2}$ inches as the normal conjugate, one can divide the different contractions into 5 degrees, the first four separated from each other by half inch measurements, the fifth degree comprising all pelves with a true conjugate less than $2\frac{1}{4}$ inches. This presupposes that a simple flat pelvis is being dealt with; in the presence of general contraction the condition must be considered worse by half an inch. Tweedy also pleads for precision in pelvic measurement in carrying out scientific methods of treatment; that this precision can be obtained only by Skutsch's pelvimeter, the use of which requires considerable practice; that treatment based on the known size of the pelvis will yield better results than that obtained by any other single method. Of other methods, the most important is Professor Muller's, which is of immense utility, but not of universal application. It often fails in obese women, or when the child lies in the third or fourth position with the head extended.

He no longer considers it justifiable in a well appointed hospital to induce premature labor or to perform prophylactic version as a treatment for contraction without complication. These women may be allowed to fall into labor and deliver themselves naturally, provided that the narrowing is not greater than the first or second degree. Delivery by forceps or by enlargement of pelvis should not be delayed when once material or infantile symptoms of distress have appeared, and for these a careful and continuous watch should be kept. In contractions of the third degree the patient's powers should not be wasted by a prolonged second stage, for an enlarging operation will nearly always be necessary for delivery. In the fourth degree of contraction Cesarean section, intraperitoneal or extraperitoneal, is the operation of necessity, if the child is alive, while craniotomy with cleidotomy if necessary, can be relied on for delivery, if the child is dead. In the fifth degree, whether the child is dead or alive, it is best extracted by Cesarean section. Two Cesarean sections were performed during the year.

Labor was induced 11 times—for a dead child 4 times, for albuminuria and edema once, for hydramnios once, for myoma once, and for ante-partum hemorrhage, once. There remain three cases in which labor was induced at full term because of fetal death on former occasions from unexplained causes

when labor occurred spontaneously. Live children resulted in these cases. There were 34 cases of post-partum hemorrhage, during the year; 22 cases occurred before the placenta left. In 12 of these the placenta was expressed directly from the uterus; in the other 10 a portion or all of the placenta was adherent necessitating manual removal—three times, of pieces of placenta left after expression; seven times of the whole placenta. Six of the 34 cases followed operative delivery, necessitating an anesthetic. The treatment was as follows: Intrauterine douche followed by a gauze plug, 11 cases; intrauterine douche, 8 cases; repair by catheterization, expression of placenta, massage, manual control, and the administration of ergotin.

Annales de Gynécologie et d'Obstétrique, Paris

June, XXXVII, No. 6, pp. 321-383

- 35 Twin Pregnancy Complicated with Vesicular Mole. (Grossesse gémellaire compliquée de môle hydatiforme.) A. Herrgott.
36 Drainage of the Abdomen in Gynecology. H. Hartmann and M. Metzger.
37 *Evolution of the Stump of the Cervix after Subtotal Hysterectomy. (Evolution du moignon cervical après l'hystérectomie subtotale.) M. Mériel.

37. Fate of the Stump after Subtotal Hysterectomy.—Mériel reviews the various mishaps liable to occur after incomplete hysterectomy. Leucorrhea is the rule for a week or a month afterward, and it may persist to such an extent as to require removal of the stump of the cervix later. The glands in the cervix develop excessive secretion under the influence of the operative traumatism; in rabbits Burkhardt found the stump transformed into a cystic tumor at the end of a few months. This excessive secretion in the cervical glands might be avoided by making the amputation lower down, close to the vagina, thus leaving fewer glands to secrete. The records show further that in from 3 to 6 per cent. of the cases the stumps develop malignant degeneration. Richelot compiled 22 cases in 1905 and the list is much longer now. The cervix may have already contained a cancerous growth at the time of the operation or the supposed fibroma may have been a sarcoma. For these and other reasons Mériel advocates total hysterectomy, not leaving any stump, and presents statistics to show that the mortality of the two techniques does not materially differ. The danger of infectious complications by way of the vagina can be obviated, he thinks, by swabbing the vagina with dilute tincture of iodine and curetting the cervix the night before the operation to remove accumulations of mucus. French surgeons in general, he says, seem to be discarding the subtotal for total hysterectomy more and more.

Annales des Maladies des Org. Génito-urinaires, Paris

June 1, XXVIII, No. 11, pp. 961-1056

- 38 *Bismuth Paste in Urology. (Des injections de pâte bismuthée en chirurgie urinaire.) Heitz-Berger and Moreno.
39 Anatomic-Clinical Classification of Ureter Deformities Based on 251 Cases on Record. (Sur les anomalies urétérales.) J. and P. Delmas.

June 15, No. 12, pp. 1057-1152

- 40 Operative Treatment of Vesicovaginal Fistula with Participation of the Ureter in the Fistula. Rochet and Muller.
41 *Non-Gonorrheal Urethritis. B. Motz.
42 Technique of Section of the Urethral Meatus. J. de Sard.
43 *Indications for Various Operative Methods with Hypertrophy of the Prostate. Bensa.
44 *Case of Rapid Postoperative Recurrences of Traumatic Urethral Stricture. M. Palazzoli.

38. Bismuth Paste in Urology.—This communication from the Paris Necker hospital relates the application of Beck's bismuth paste in 10 cases of fistula resulting from removal of a tuberculous kidney and another of a fistula with a simple pyonephrosis with concretions. Nine articles on the use of the bismuth paste have been published in France. The paste used was a mixture of 10 parts bismuth with 10 parts each of paraffin and lanolin and 20 parts of vaselin. The amount injected was only from 5 to 10 or 12 c.c. except in a single case. In other points Beck's technique was followed and although such striking results as he has reported were never observed, yet on the whole the verdict is favorable. A cure was attained in some cases in which the process had proved rebellious to all other measures. The suppuration is materially reduced by the paste which renders it unnecessary to change the dressing as often as otherwise.

41. **Non-Gonorrheal Urethritis.**—Motz classifies non-gonorrheal urethritis aside from the venereal form as of traumatic, clinical or spontaneous origin or consecutive to descending infection of kidney or bladder, and he then discusses the therapeutic indications for these five types when the trouble is recent. Some do better with mild disinfectants, while the primary venereal urethritis may require stronger measures and the urethritis due to the presence in the urine of certain irritating salts or toxins demands general treatment before instituting local measures.

43. **Indications for Operative Treatment of Hypertrophy of the Prostate.**—Bensa determines by cystoscopy (1) the shape of the hypertrophy, (2) its consistency by palpation through the rectum and its nature in general by the hematuria and the various secretions, and (3) the state of the general health, especially that of the lungs, heart and kidneys, testing for urea, albumin and sugar. Total transvesical prostatectomy he reserves for fibroadenomatous hypertrophy of the lateral lobes in younger and only slightly infected patients, and it is done in two sittings with a temporarily infected patient. Partial transvesical prostatectomy is applicable for a pedunculated middle lobe. Perineal prostatectomy is preferable when there is suppuration—on account of the facility of drainage, and possibly for the lower hypertrophied lobes. The Bottini operation may be applied for soft hypertrophy of the lateral lobes, which it is difficult or impossible to enucleate, for "bar" hypertrophy of the middle lobe and stenosis of the neck of the bladder; also when the patient refuses an abdominal operation or is too weak for any other technic. This Bottini operation removes the part of the prostate obstructing the posterior urethra and neck of the bladder. The results are certain, permitting almost without any danger the removal of the obstacle to urination. Suprapubic cystotomy is advised in the hemorrhagic forms or when there is infection of long standing; it should be supplemented by deep cauterization of the protruding lobes or bands in the neck of the bladder. In some cases the cystotomy alone is all that is indicated to relieve and soothe the bladder by diverting the urine, and this treatment thus forms the last resort when all the ramifications of the urinary apparatus are distended and infected.

44. **Recurring Stricture.**—Palazzoli emphasizes the fact that a stricture cannot be regarded as cured until the underlying cause has been definitely removed. In the case reported the inflammation was the result of injury from a concrement and the stricture constantly recurred after dilatation. This persisting inflammation can generally be detected and cured only by palpation and massage over a large bougie in the urethra, possibly supplemented with electrolysis.

Archives des Maladies de l'App. Digestif, Paris

June, IV, No. 6, pp. 305-368

- 45 *Six Cases of *Trichocephalus dispar* Enteritis. A. Cade and C. Garin.
- 46 Mechanism of Action of Secretory Stimulants Introduced by Way of the Rectum in Dogs with Pawlow Fistula. Wasserthal.
- 47 Evacuation from the Stomach of Cold Mineral Waters Ingested Fasting. A. Monsseaux.

45. **Enteritis Due to the *Trichocephalus Dispar*.**—Cade and Garin's patients were between 25 and 40 years old and the syndrome varied in each case but the diarrheic form with invisible hemorrhages was most common, persisting for months and years. In some cases periods of constipation intervened, and in some the tenesmus and colics simulated dysentery, or the false membranes in the stools suggested mucomembranous colitis. The trichocephalus locates by preference in the right iliac fossa, and the symptoms may include a spasm of the bowel suggesting a pathologic induration in this part of the intestine. In some of the patients gastric symptoms predominated, the clinical picture simulating then nervous or neurasthenic dyspepsia. Headache, dizziness and weakness were constant symptoms and a temperature at times up to 38 C. or still higher for a few days was sometimes noted. The discovery of occult blood in the stool and of eggs of the helminth are important aids in differentiating, as also the lingering nature of the symptoms and their flaring up especially in summer. In one of the cases cited the diagnosis had

long been tuberculous enteritis but the occult blood and the trichocephalus in the stool and the improvement under thymol confirmed the assumption of helminthiasis. They gave thymol in 15 grain doses three or four times a day for three or four days, following with a saline purgative, the patient abstaining in the meanwhile from alcohol, wine and oil. This course was repeated after an interval of a few days. It does not always abolish the helminths entirely, even with several courses, but great improvement in the condition was always manifest and no untoward by-effects were noted in any instance.

Archives de Médecine des Enfants, Paris

July, XIII, No. 7, pp. 481-560

- 48 *The Heart in Acute Articular Rheumatism in Children. P. Nobécourt.
- 49 Anaphylaxis for Cow's Milk in Infants. (Anaphylaxie pour le lait de vache chez les nourrissons.) Barbier.
- 50 *Inflammatory Nature of Stenosis Ascribed to Muscular Hypertrophy of the Pylorus in Infants. E. Weill and Péhu.
- 51 *Epidemic of Whooping-Cough with Gastro-intestinal Complications. (Considérations sur quelques complications d'une épidémie de coqueluche et sa disparition brusque à la suite d'une cause météorologique.) N. B. Nicoletopoulos.

48. **The Heart in Acute Articular Rheumatism in Children.**—Nobécourt advises keeping a child in bed and giving sodium salicylate even in the very mildest cases of acute rheumatism, enforcing bed rest with especial insistence with any signs of complications on the part of the heart; if the myocardium is involved even the slightest movement may bring on syncope. He also advises an exclusive milk diet or milk or vegetable diet, keeping the bowel function regular with enemas and laxatives and applying sinapisms and dry or wet cupping over the heart if there is much pain. In this case and also if the myocardium shows signs of weakness, he keeps cold wet compresses or an ice bag over the heart. The majority of physicians keep up the salicylate even with myocardium trouble; the drug does not seem to have the depressing action that used to be feared from it, and it may have a favorable action on the serosa. Weill tried subcutaneous injections of sodium salicylate in parenchymatous myocarditis but without apparent effect. On account of the analogies between the virus of the disease and lactic acid, alkalines have been given in treatment by some and they do not seem to do harm, to say the least. After subsidence of the acute phase, the patient should be kept under supervision and exercise, arsenic, iron and iodids and a course of mineral waters ordered as indicated. He cites a number of cases from his experience to show the various types of heart trouble liable to be encountered, including two cases of functional mitral insufficiency and some cases in which the endocarditis, pericarditis or myocarditis occurred with attenuated rheumatism, even without joint lesions or fever. P. Weill has encountered cases of actual visceral rheumatism with no joint symptoms.

50. **Inflammatory Nature of Stenosis of the Pylorus in Newly-Born Infants.**—Weill and Péhu present data to sustain the assertion that the stenosis is sometimes merely the result of a hyperplasia of the pylorus musculature secondary to an inflammatory process in the stomach. The inflammation may be of greater or less extent and intensity which explains the variability of the symptoms. The gastritis may be clinically cured by medical measures and these should be given a thorough trial and time to act before considering operative treatment.

51. **Whooping-Cough.**—This communication from Greece states that during an epidemic of whooping-cough gastro-intestinal symptoms suggesting typhoid were common and proved fatal in a number of cases. The epidemic was in summer but a sudden change in the weather, bringing a cold northeaster, seemed to blow the whole epidemic away. The local doctors, meeting two days later, all had wonderful tales to tell of the great efficacy of the special drug which each had happened to be prescribing for his little whooping-cough patients the day the weather turned. On comparing notes, however, they came to the conclusion that some general factor must have been responsible for the benefit derived on that and the following day in all the cases from the various drugs that had been used. And this factor seemed to have been the sudden change in the weather.

Bulletin de l'Académie de Médecine, Paris

June 28, LXXIV, No. 25, pp. 651-674

- 52 Arsenical Insecticides in Agriculture. Duguet and Committee.
53 *The Dog as Typhoid-Bacilli Carrier. (Le chien, porteur de bacilles d'Eberth.) J. Courmont.
54 *Differential Radiodiagnosis of Gall-stones and Urinary Calculi. A. Bécère.

53. Dogs as Typhoid-Bacilli Carriers.—Courmont found that 10 of the 12 dogs tested eliminated typhoid bacilli regularly in their stool for four or five days after eating a single meal of food experimentally contaminated with typhoid bacilli. The bacilli seemed merely to pass through the dog's body without causing lesions or symptoms, but it is evident that during the five days following ingestion of typhoid material the dog is liable to be a dangerous bacillus carrier. In the two cases with negative findings in the stool the bacilli proved afterward to have been derived from cases of Malta fever.

54. Radiodiagnosis of Gall-Stones and Urinary Concrements.—In the case reported by Bécère the symptoms indicated kidney stone and radioscopy showed a large concrement in the right side. Its shadow was 40 mm. in diameter when the tube was placed above the patient but the shadow was only 28 mm. in diameter when the tube was placed beneath, the patient's position and the distance of the tube the same for each exposure. This difference in the size of the diameter with the upward and downward exposures indicated that the stone must have been much nearer the front than the back of the body, suggesting that it was in the gall-bladder rather than in the kidney, although there had been no signs of anything wrong with the biliary apparatus. The hematuria was still unexplained until the tube was applied to the left side also, when a small kidney stone was discovered.

Grèce Médicale, Syra, Greece

II, Nos. 7-8, pp. 17-20. Last indexed May 14, p. 1655

- 55 *Malarial Hemoglobinuric Fever Should Not be Treated with Quinin. (Quelques mots sur l'étiologie et la pathogénie de la fièvre bilieuse hémosphérinurique; devons-nous la traiter par la quinine?) J. Cardamatis.

Nos. 9-10, pp. 21-24

- 56 Influenza and Dengue. (Grippe et fièvre dengue.) P. N. Divaris.

55. Should Quinin be Given in Hemoglobinuric Fever?—Cardamatis has been collecting the experiences of physicians throughout Greece in regard to hemoglobinuric fever and its treatment with quinin and states that in 2,481 cases, including 55 from his own practice, the mortality was 24.42 per cent. in the 1,347 cases in which treatment was with quinin, but only 7.32 per cent. of the patients died in the 1,134 cases in which no quinin was given. This list includes the experiences of 105 Greek practitioners, in as many different foci of malaria, and the conclusions from the total statistics confirm what Cardamatis has been teaching since 1893, namely, that complete abstention from quinin is necessary in treatment of bilious hemoglobinuric fever. The hemoglobinuria is stated to have followed eating green beans or their flowers in a number of cases, and Kouzis has isolated from fresh beans a special ferment which he calls "cyamose," but Cardamatis thinks that the trouble is more likely to be explained by some minute mushroom growth on the raw beans, the mushrooms containing some poisonous element. One of the Greek physicians reported a case brought on apparently by emotional stress, in another by the odor of resin, drinking a glass of an infusion of quassia or decoction of absinthe, or, in one child of 8, by eating a very large number of figs. In Gliompres' case fatal hemoglobinuria came on after eating a dish of snails. Blood from the hemoglobinuric patients failed to show any evidence of a special hemolytic action or a destructive action on the malarial parasite.

Lyon Médical, Lyons

June 12, XLII, No. 25, pp. 1237-1280

- 57 *Absorption of Ultraviolet Rays by Transparent and Colorless Substances and Practical Consequences for Hygiene. (Translucidité et opacité ultra-violettes par les substances transparentes et incolores à la lumière. Application aux liquides de l'organisme.) H. Bordier.

June 26, No. 26, pp. 1281-1324

- 58 Histogenesis of Syphilitic Gumma in the Liver. L. Bérlet and C. Laurent.

July 3, No. 27, pp. 1325-1376

- 59 *Intestinal Dyspepsia. A. Cade. Commenced in No. 26.

57. Absorption of Ultraviolet Rays by Impurities in Air, Etc.—Bordier reports extensive research on the absorption of the chemical rays by various substances, organic fluids, transparent solutions, etc., and draws some practical conclusions. The crystalline lens and cornea become fluorescent under the action of the rays, showing transformation of energy, and this transformation of energy cannot occur, he believes, without some physiologic transformation which in time may become pathologic. He advises careful exclusion of the ultraviolet rays in all sources of illumination, kerosene lamps and incandescent lights being far preferable in this respect to an arc light, Auer, Nernst or mercury light. His experiments further showed that the impurities in the air of cities absorb the ultraviolet rays so that they lose their bactericidal action on the air. The composition of city air renders it an impenetrable barrier for the ultraviolet rays unless high winds keep the air constantly replenished. It is not necessary, however, he adds, to send persons to a great distance to get pure air—a few miles beyond the city limits the ultraviolet rays display their full powers again. This should be borne in mind, he suggests, in selecting a site for a hospital.

59. Intestinal Dyspepsia.—Cade applies this term to habitual functional disturbances in the intestinal digestive process, independent of any lesion in the bowel. He discusses in turn the clinical manifestations, causes, effects elsewhere, diagnosis, prognosis and therapeutic indications. The most common form is that due to lack of sufficient gastric juice, and this indicates treatment with acids. With pancreatic insufficiency the acids should be supplemented with the ferments and lime salts. With a lack of sufficient bile, an extract of bile can be given, with sodium and magnesium salts. In all the forms special attention should be paid to the always predominant nervous element. A well conducted course at a spa is often particularly useful in permanently curing intestinal dyspepsia, selecting the waters best adapted for the patients with the diarrheic or constipated form.

Obstétrique, Paris

June, III, N. S., No. 6, pp. 561-608

- 60 *Diagnosis and Importance of the Loss of Lime During Pregnancy. (Décalcification gravidique.) Marquis.
61 Changes of Presentation in Course of Labor. (Relations étiologiques entre les présentations du siège décompleté mode des pieds et les mutations polaires de présentations au cours du travail.) J. Rouvier.
62 Jonges' Position to Enlarge the Outlet of the Pelvis During Labor. (L'agrandissement du diamètre bis-ischiatique.) A. H. M. J. Van Rooy.

60. Loss of Lime During Pregnancy and Its Clinical Importance.—Marquis states that there is evidently a physiologic loss of lime during pregnancy, manifested by the looseness of the pelvic articulations; if it reaches a pathologic degree there is pain in the symphyses, and this he regards as the first stage of osteomalacia, believing that this degree of osteomalacia is quite common; in the second phase, there is considerable pain in the bones and walking is difficult, but the pelvis is not deformed. The third stage, in which the pelvis is actually deformed, is the only form of the affection recognized by other authors to date, and this is why the prognosis of osteomalacia is generally considered so grave. Examination of the proportion of lime in the blood is a reliable method of determining the condition in regard to lime waste. In two typical cases described in detail, the blood contained 0.12 per thousand lime in one and 0.162 in the other, instead of the normal average of 0.052 for the pregnant woman. The proportion of lime in the blood has always paralleled the severity of the osteomalacic disturbances in his clinical experience. The disturbance in osteomalacia is a decalcification while in rachitis it is more impossibility of recalcification. The decalcification in pregnancy is probably due to some disturbance in ovarian, suprarenal or similar functioning, with a predisposition afforded by frequently repeated pregnancies and deficiency of lime in the food.

Presse Médicale, Paris

July 6, XVIII, No. 54, pp. 513-520

- 63 *So-called Primary Neuralgia of the Rectum E. Parmentier and J. Foucaud.

63. **Neuralgia of the Rectum.**—In this article two typical cases are reported of primary rectal neuralgia. One was a butcher of 36 with intense paroxysmal pain in the region of the rectum, the other was a woman of 46. In her case the pain came on soon after eating and lasted for nearly three hours. In both cases there had been a preceding enterocolitis. Both patients were much benefited by a general brief tepid douche followed by local hot douches to the region. The application of heat in this way cured the first patient completely and the second is nearly cured and there has been no recurrence in either case for more than a year. The history, symptomatology and the diagnosis by exclusion are discussed and the benefit from local heat emphasized.

Revue de Gynécologie, Paris

June, XIV, No. 6, pp. 513-624

- 64 Atresia of the Hymen. L. Aubert.
65 Kraurosis and Leukoplasia of the Vulva. F. Jayle and X. Bender.
66 Tumors of Wolffian Origin in the Round Ligament. M. Chevassu.
67 Rectoscopy: History, Technic, Indications and Findings. G. Luys.

Revue de Médecine, Paris

June, XXX, No. 6, pp. 449-528

- 68 Comparative Study of the Reactions of the Islands of Langerhans in the Pancreas and of Lymph Glands and Spleen in Experimental Tuberculosis. M. Salomon and P. Halbron.
69 Mediastinal Pleurisy. E. Devic and P. Savy.
70 Acute Poliomyelitis. IV. E. Job and J. Froment.

Semaine Médicale, Paris

July 13, XXX, No. 28, pp. 325-336

- 71 *The Relics of Tubal Abortion and Their Diagnosis. (Les reliquats de l'avortement tubaire.) F. Lejars.

71. **Retrospective Diagnosis of Tubal Abortion.**—Lejars regards a prolonged continuous blood stained uterine discharge as an important aid in differentiating tubal abortion; even if the proportion of blood is small its persistence for two up to five weeks is characteristic and absence of blood in the vaginal discharge is strong evidence against a recent hematocoele. The slight hemorrhage seems to persist longer after tubal abortion than after rupture. Incomplete expulsion of the ovum is also liable to keep up the hemorrhagic discharge, and he relates some instances of such retention of the placenta with the tube open and of total retention with the tube closed. The small encapsulated collection of blood may be taken for a fibroma and the resulting disturbances for inflammatory processes in the adnexa or in the uterus. Certain cases of tubal abortion have been diagnosed as a hemorrhagic metritis and the uterus was curetted when this organ was sound and the trouble was in the tube beyond the reach of the curette. It might possibly have been detected if the adnexa had been systematically palpated. The tubal abortion may not have been recognized as such and the discovery of the small encysted collection of blood in the pelvis years later may be a puzzling find.

Archiv für klinische Chirurgie, Berlin

XCII, No. 1, pp. 1-263. Last indexed April 16, p. 1343, and August 6, p. 539

- 72 Roentgen Carcinoma and its Origin. F. Rosenbach.
73 Results of Traumatic Severing of the Achilles Tendon. (Zur Kenntniss des Pes calcaneus traumaticus.) S. Peltsohn.
74 Plastic Operation for Intrathoracic Fistula into Lower Trachea. (Intrathoracische Luftfistel seltener Aetiologie und ihre plastische Deckung durch einen Hautperlostknochenlappen.) M. Hofmann.
75 *Technic for Alcohol Injections in Trigeminal Neuralgia. (Die Technik der Injektionen in die Trigeminalsstämme und in das Ganglion Gasserli.) H. K. Offerhaus.
76 The Accessory Ligaments of the Shoulder in Connection with Dislocation. (Die Hemmungsbänder des Schultergelenks und ihre Bedeutung für die Schulterluxationen.) E. Delorme.
77 Congenital Urethra Diverticulum. (Fall von angeborenem Harnröhrendivertikel.) S. Timofeev.
78 Retroperitoneal Dermoid Cysts. F. Ehler.
79 Single Cysts of the Long Bones. (Die solitären Cysten der langen Röhrenknochen.) W. Röpke.
80 Case of Spontaneous Exclusion of Loop of Small Intestine. (Fall von spontaner Ausschaltung einer Dünndarmschlinge, nebst Bemerkungen zur Frage des Ileus.) P. Esau.
81 Treatment of Complications of Gastric Ulcer. (Behandlung der Complicationen des runden Magengeschwürs.) I. K. Spischarny.
82 Antiferm Treatment of Suppurative Processes. E. Hesse.
83 Experiences with Excision and Resection of Gastric Ulcers; 24 Cases. (Magengeschwüre.) E. Payr.
84 Varices in Abdominal Wall. (Ueber Phlebectasien der vorderen Bauchwand.) E. Bibergeil.
85 Recurring Volvulus of Small Intestine. (Fall von Wiederholung des Dünndarm-Volvulus.) W. Philippowicz.

75. **Technic for Injections into the Trigeminal Nerve.**—Offerhaus has been working out a method for certain and safe localization of the nerve for deep injections of alcohol, etc., in treatment of chronic trigeminal neuralgia. He reviews the history of the method and lauds its efficiency. The ancient Greeks knew that the dimensions of the human body are proportional to each other so that, given certain measurements, the others can be estimated from them, and he has found that this applies also to the skull bones and to their various parts. Comparative measurements of 60 European skulls in the Groningen museum of anatomy showed that the distance between the oval foramina is always equal to the distance between the alveolar processes measured beyond the last molars at the point where the palate process joins the lower jaw. The distance between these points is readily determined by measuring in the mouth. Eleven instructive illustrations and diagrams show the conditions and the various laws he has worked out from this material and his experience with deep injections in 8 cases. The laws of practical importance are that the distance between the inner side of the alveolar processes back of or beside the last molars, is equal to the distance between the round foramina. The distance between the outer side of the alveolar processes measured beyond the last molars is equal to the distance between the oval foramina; it is also equal to the distance between the outer sides of the maxillary tuberosities. The distance between the oval foramina and the outer side of the maxillary tuberosity is equal also to the distance between the round foramen and the outer side of the malar bone. In practice, therefore, it is necessary to know only the distance between the inner side of the alveolar processes and the distance between the maxillary tuberosities to know the point where the needle inserted will hit the third branch of the trigeminal nerve; if these measurements are respectively 5 cm. and 14 cm.

14—5

then the oval foramen lies at a depth of $\frac{14-5}{2} = 4.5$ cm.

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The same principle applies also to the second branch and the round foramina. In order to determine with precision the exact direction to give the needle, he has devised graduated calipers with an adjustable rod in the end of each branch. The calipers are applied to the maxillary tuberosities and the rods are adjusted so that they project in a single straight line and the needle is introduced along this imaginary line running between the tuberosities. The needle first pierces the parotid gland, then passes in front of the maxillary articulation, through the rear wall of the masseter muscle and through the external pterygoid, and then reaches the third branch of the trigeminal nerve just before it divides. No large vessels are encountered on the way. To reach the second branch, the distance between the zygomas is determined in the same way as also the imaginary line connecting them; the calipers are applied to the middle of the malar bone about 1.5 cm. behind the point where the ascending and horizontal portions meet. The needle is introduced just above the zygomatic process, or, if it is desired to hit the second branch where it emerges from the round foramen, the needle is introduced just below it, the point of the needle directed a little upward and backward. The above technic locates the nerve within a few millimeters unless there is marked asymmetry of the skull, Offerhaus declares, and the simple method of deep injections is thus rendered accessible to all. He advises injecting a little alcohol into the peripheral foramen at first, and then, if this does not cure, making a deep injection. General anesthesia is unnecessary and actually detrimental. He adds that the entire domain of the second and third branches of the trigeminal nerve can be readily and effectually anesthetized by a single injection of a small amount of an anesthetic to reach the nerve as it passes out from the round or oval foramen.

Beiträge zur Klinik der Tuberkulose, Würzburg

XVI, No. 4, pp. 327-417. Last indexed July 30, p. 442

- 86 *Treatment of Tuberculosis According to Dr. Carl Spengler of Davos; I. K. (Tuberkulose-Therapie nach Dr. Carl Spengler mit besonderer Berücksichtigung des I. K.). R. Benöhr.

- 87 Idem. (Anwendung und Wirkungsweise des I. K. an der Hand von Krankengeschichten aus der Carl Spenglerschen Praxis.) R. Benöhr and A. Hoffmann.
88 Idem. (Behandlung der Tuberkulose mit I. K. in der Landpraxis.) W. Pumr.
89 Idem. (Erfolgreiche Anwendungswelse des "I. K." Spengler bei der Behandlung der Tuberkulose.) Westphal.

86. **Treatment of Tuberculosis.**—Benöhr states that Spengler regards the red corpuscles as the main source of production and storage of the immune bodies, and he obtains his I.K. (Immun-Körper), to serve as a tuberculin, from the dissolved corpuscles of artificially immunized sheep and rabbits. Benöhr tabulates the details of 130 cases of tuberculosis in which this treatment was applied at Davos, and Pumr of 46 other cases while Westphal relates his experiences with it at Hannover. The conclusions of the writers are all favorable as to its efficiency. Spengler has made a special study for nearly twenty years of the combination of tuberculosis and syphilis. An inherited syphilitic taint is found underlying the tuberculosis in more cases than is generally recognized. Syphilitic involvement of the lung is comparatively frequent although it is difficult to produce anatomic proof. The syphilitic lung is inclined to be "fleshy," hypertrophied, with a tendency to cirrhosis in time. A characteristic auscultation finding over these "fleshy" lungs is a murmur (Rauschen), more frequent over the middle and lower lobes than the upper, corresponding to the more usual location of syphilitic changes in the lung. This murmur is generally restricted to the terminal phase of inspiration and the beginning phase of expiration. With tuberculosis combined with syphilis the larynx is frequently involved and this is often the primary process. The bronchi also are notably involved, especially with acquired syphilis. Auscultation reveals this syphilitic bronchitis by the bronchial symptoms and a rattling or a snoring sound. Another sign is the lack of proportion between the apparently extensive pulmonary process and the well nourished, healthy aspect of the patient. The syphilitic-tuberculous sputum is large in amount, mucous or mucopurulent, and the microscope shows numerous cellular elements with fragmented nuclei in contrast to the sharp outlines of the cell nuclei under other conditions. Tubercle bacilli are few and far between, even with extensive processes in the lung. Sometimes spirochetes can be discovered in the sputum. Vigorous mercurial treatment is contraindicated in the tuberculous, and only mild measures can be used. Many obstinate cases of pulmonary tuberculosis yield to tentative antisiphilitic measures; the outlook is more promising in the young and in the stage of inflammatory hypertrophy. In one such case a man had had pulmonary symptoms for 26 years; the cough had increased during the last six months and there was fever and a few tubercle bacilli were found. He has healthy children and no history of syphilis, but 20 drops of tincture of iodine twice a day in milk banished nearly all the râles in less than two weeks and by the end of two months the temperature was normal, the expectoration and râles had ceased and the patient had gained many pounds in weight.

Berliner klinische Wochenschrift

June 27, XLVII, No. 26, pp. 1213-1260

90. *Sudden Total Amaurosis in Woman of 71 and Man of 50. (Ursache von plötzlicher doppelseitiger Lebensalter.) W. Uthoff.
91 *Tu Idem. Tuberculosis. H. Wildbolz.
92 Cy Cysts. A. Reuner.
93 Ca of the Large Intestine. (Zur Dickdarmtorsion.) A. Augspach.
94 An finers. A. Springfield.
95 Tuberculin Test in Dairies. (Zur Frage der Tuberkulinprüfung der Kindermilchkühe.) C. Bolle.
96 Idem. B. Möller.
97 *Treatment of Chronic Lead Poisoning with Fixation Abscesses. (Zur Behandlung des chronischen Saturnismus mit Fixationsabscessen.) V. Hinze.
98 Warning for Caution in Application of Wassermann Syphilis Reaction in Diagnosis. A. Freudenberg.

90. **Sudden Blindness in the Elderly.**—Uthoff reports two cases of sudden bilateral blindness which he ascribes to a peripheral, basal affection of the optic nerve, basing his diagnosis on the exclusion of all other probable causes. In the first case nothing pathologic could be found in the woman of 71 except a tendency to arteriosclerosis. The only plausible explanation seems to be bleeding from an artery at the base of the brain, the blood entering the sheath of the optic nerve, or compressing it after encapsulation of the minute hemor-

rhage. The cerebrospinal fluid was limpid on lumbar puncture five weeks later. In the second case there were signs of a preceding tendency to neuritic atrophy of the optic nerve although the patient, a man of 59, had not been conscious of any disturbance; a basal hemorrhage had probably occurred also in this case.

91. **Tuberculin Treatment of Kidney Tuberculosis.**—Wildbolz states that microscopic examination of the kidneys in 5 cases after prolonged courses of tuberculin treatment failed to reveal any tendency to healing of the tuberculous processes in the kidney under the influence of the tuberculin. In 4 of the patients the tuberculosis was restricted to one kidney and the conditions were unusually favorable for a cure if the tuberculin treatment had been able to effect such, but in every instance the disease progressed and nephrectomy became necessary in time. The general health persisted good and the tuberculous process had not progressed to the cheesy phase or cavity formation notwithstanding its long duration, up to 8 years in one case. There were no evidences in any of the kidneys of an injurious action from the tuberculin. He also reports 3 cases in which the tuberculous process in the kidney apparently healed under conservative measures without tuberculin, and the patients were in good health for 3, 2 and 9 years before the symptoms flared up again and the long advised nephrectomy was permitted. Such spontaneous remissions and apparent clinical cures impose extra caution in estimating the effect of tuberculin. His conclusions from these and other data cited are that tuberculin has a general favorable, toxin-binding influence in case of kidney tuberculosis but no appreciable local action on the lesions. In his 31 cases the general health almost invariably improved under the tuberculin but no patient was cured or even relieved from his local disturbances. Extreme caution is necessary if tuberculin is given in advanced kidney tuberculosis on account of the extensive absorption of the toxins of the tubercle bacilli in the kidney process, flooding the system with tuberculin from within. In early cases of unilateral kidney tuberculosis, a trial of tuberculin is justified, especially in the young. By this means it may be possible to benefit in some cases, and the constant oversight required with tuberculin treatment enables a prompt decision as to when nephrectomy should be advised or enforced, while the findings in the kidney will throw light on the actual action of tuberculin in such cases. We must ask more of the tuberculin with kidney than with pulmonary lesions, as in nephrectomy we have a means of actual definite cure, while there is no such resource with pulmonary lesions.

97. **Fixation Abscess in Treatment of Lead Poisoning.**—Hinze reports a case in which unmistakable benefit was derived from a fixation abscess made in the thigh by subcutaneous injection of 1 c.c. of turpentine. Although the patient in this case had had nothing to do with lead for ten months, yet 0.089 per cent. of metallic lead was recovered in 1.528 gm. of pus from the abscess. The patient in this case, a type-founder of 41, suffered also from tuberculosis, alcoholism and arteriosclerosis and there were signs of interstitial nephritis, but he bore the fixation abscess without apparent harm. At autopsy a few months later only traces of lead could be found in the liver and none in the bone marrow. J. Carles reported last year 2 clinical cases and considerable experimental research, all confirming the action of the harmless fixation abscesses in aiding in the elimination of lead in cases of industrial lead poisoning. He calls it "leukocyte venesection."

Deutsche medizinische Wochenschrift, Berlin

July 7, XXXVI, No. 27, pp. 1257-1304

- 99 Pathology and Treatment of Hydrophobia. (Tollwut.) O. Lentz.
100 The Experimental Basis for the Use of the New Arsenical Preparations in Spirochete Diseases, and Particularly in Syphilis. P. Uhlenhuth and P. Mulzer.
101 *Secondary Infection with Tubercle Bacilli and Their Saphrophytic Growth. C. Hart.
102 Radiography of the Appendix. (Die radiographische Darstellung des Wurmfortsatzes.) R. Liertz.
103 Gelatin and Coagulation of the Blood. (Gelatine und Blutgerinnung.) H. Grau.
104 Advantages of Early Operation for Appendicitis. H. Kümmell. Commenced in No. 26.

- 105 *Treatment of Flat-Foot. (Eine auf einem neuen Prinzip begründete Plattfusseinlage.) O. Momburg.
 106 New Histologic Findings with Glioma of the Retina. M. Peschel.
 107 Oxygenated Mud Baths. (Sauerstoffmoorbäder.) M. Wassermann.
 108 *Beethoven's Deafness. (Ludwig van Beethoven's Gehörleiden.) L. Jacobsohn.
 109 *Treatment of Deformities of the Feet. (Weitere Beiträge zur Behandlung von Fussdeformitäten.) J. Fränkel.

101. Secondary Infection with Tubercle Bacilli and Their Saprophytic Growth.—Hart is a prosector and he protests against the assumption that children are infected with tuberculosis as generally as seems to be the case from the numerous positive responses to the Pirquet tuberculin skin test. Again and again in his experience the autopsies of children giving a positive Pirquet reaction during life have failed to reveal the slightest tuberculous lesion under the microscope. He thinks it is far more likely that tubercle bacilli may be located somewhere in the body, leading a saprophytic existence and causing no tissue reactions, but at the same time absorption of their toxins from their saprophytic growth may lead to the production of antibodies which in turn would give a positive reaction to the ultrasensitive Pirquet test although in reality there are no tuberculous lesions. To sustain these views he reports a demonstrative case in which a colony of tubercle bacilli were found living a saprophytic existence without trace of microscopic changes in the tissues in which the colony of bacilli were encooned. The cadaver was that of a locksmith of 51, with no tuberculous antecedents in the family. He had been coughing for several years and lately had become much emaciated. The physical findings in the right middle lobe suggested tuberculosis; there had been hemoptysis on one occasion, and after repeated negative findings a few tubercle bacilli had at last been detected in the sputum. The ocular tuberculin test with 2 per cent. solution of tuberculin was negative, weakly positive with a 4 per cent. solution, and the skin test gave weak positive findings. The clinical diagnosis was thus pulmonary tuberculosis and right empyema; autopsy disclosed, however, a primary cancer in the bronchi and no tuberculous focus in the lung or elsewhere, but a small colony of tubercle bacilli were found in the thick pus in the enlarged bronchus while the pus in the lung contained merely streptococci. He interprets the case as one of secondary colonization of inhaled tubercle bacilli in the stagnating secretion of the compressed bronchi, where they led a saprophytic existence, but generated toxins which were absorbed in sufficient amounts to account for the reactions to the tuberculin tests.

105. Treatment of Flat-Foot.—Momburg remarks that it is absurd to attempt to correct a twisted and sunken arch only by sustaining the center of the arch; by pushing the bases of the arch into their proper place the central arch will resume its proper position. This is the basis for his flat-foot insole. He leaves the arch alone but strives to bring the heel into pronounced supination while the bones in the ball of the foot are brought into a plane perpendicular to the axis of the leg. The heel and the heads of the metatarsal bones are the supports for the arch of the foot, and by bringing them into their proper place the arch reassumes its normal shape. He accomplishes this with a rubber, wedge-shaped insole, the slant inward and forward, the piece fitting under the heel and stopping just short of the ball of the foot. A spring below and a leather sole above hold the parts in place; the supports of the foot are forced into the proper position and the arch takes care of itself. He states that this insole has freed many patients from long rebellious flat-foot disturbances. This simple and cheap insole can be worn with any shoe with a broad low heel.

108. Beethoven's Deafness.—The first signs of Beethoven's deafness were noticed about the age of 25 and he tried one method of treatment after another, the deafness growing constantly worse and the subjective sounds—the *Sausen und Brausen*—tormenting him, as he says, like a demon day and night. He turned from one physician to another and finally to quacks, and various ear trumpets were devised to help him but without benefit, some by Mälzel, inventor of the metronome. He succumbed finally, at the age of 57, to cir-

rhosis of the liver. The Eustachian tubes were found at autopsy much thickened, with cicatricial depressions near the mouths, the auditory nerves shriveled and without medulla, and general signs of otosclerosis. The convolutions of the brain were twice as deep and numerous as in the average brain, the skull very thick. The loss first of the high tones shows that the deafness was primarily of nervous origin while the subjective sounds revealed the otosclerosis which the autopsy findings confirmed. Beethoven had smallpox in youth and a typhoid affection a few years before his deafness; the typhoid, Jacobsohn remarks, may have been responsible both for the otosclerosis and the bowel trouble from which he suffered. There was nothing to suggest syphilis, inherited or acquired, except possibly a circumscribed thickening of the right parietal bone of the skull which, according to the pictures, resembles those observed on a basis of syphilis. The autopsy report was signed by J. Wagner, Vienna, 1827.

109. Treatment of Deformities of the Feet.—Before correcting the deformities, Fränkel loosens up the foot by a preliminary superheated air bath in the glass boot. He gives illustrations of various devices for correction of flat-foot and club-foot and the technic for treatment of club-foot after it has been once corrected.

Medizinische Klinik, Berlin

July 10, VI, No. 28, pp. 1083-1122

- 110 *Pseudoputrid Processes in the Air Passages. H. Eichhorst.
 111 Natural Processes for Regulation of the Temperature of the Body in the Bath. (Wärmeregulation im Bade.) A. Strasser.
 112 *The Reaction in the Focus with the Subcutaneous Tuberculin Test and Its Importance for the Early Diagnosis of Apical Pulmonary Tuberculosis. (Herdreaktion bei der subkutanen Tuberkulinprobe und ihre Bedeutung für die Frühdiagnose der Lungenspitzen tuberkulose.) M. Otten.
 113 Scopolamin. M. Cremer.
 114 Torsion of the Great Omentum. (Ueber die Torsion des grossen Netzes.) E. Schlimann.
 115 Contradictory Findings with the Salomon and Hemolysin Tests for Diagnosis of Gastric Cancer. (Salomonsche Probe und Hämolyse im Magensaft und Magenkarzinom.) E. Fränkel.
 116 Indications for Various Mercurial Preparations. F. Juliusberg.
 117 Familial Occurrence of Tetany. Coler.
 118 Staining Process for Fibrin. (Zur Theorie der Fibrinfärbung.) K. Lennhoff.

110. Pseudo-putrid Processes in the Air Passages.—Eichhorst reports a case in which a putrid empyema existed in the pleura but without perforation of pus into the air passages. The putrid odor of the breath and sputum and the changes found in the air passages at autopsy were evidently due solely to penetration of the putrid gases into the lungs and their action on the tissues. In two other similar cases the women succumbed to the progress of a putrid empyema in the pleura although the breath and sputum had never had a putrid odor, and no pathologic findings were encountered in the air passages or elsewhere.

112. Importance of Focal Reaction to the Subcutaneous Tuberculin Test.—Otten regards the reaction at the focus after administration of tuberculin as the most reliable means at our disposal for estimating the actual condition of the focus, whether it is active or in a latent or healed phase. Neither the local or general reaction with the subcutaneous test is decisive in this respect while the focal response gives illuminating findings. In 324 cases in which the subcutaneous tuberculin test was applied, 60.8 per cent. of the patients responded with both a focal and a general reaction; 7.4 per cent. with a focal reaction only; 23.5 per cent. with a general reaction only, and 8.3 per cent. with no reaction of either kind. The patients were those merely suspected of a tuberculous apical process in the lung in an incipient phase. In the 221 cases giving a focal reaction this consisted of development of dulness in 6 cases, exaggeration of previously existing dulness in 78; development of dulness and new râles in 3 while in 66 the existing dulness became more pronounced and râles were heard for the first time or became more pronounced in 10 cases. In 40 cases râles were heard for the first time while the dulness persisted unmodified, and in 9 the râles increased, the resonance persisting normal. Besides these findings the patients frequently complained of a vague or sharp pain in the region of the lung involved. In some cases a cough developed for the first time or the expectoration

increased or commenced for the first time. In 3 cases there were traces of blood in the sputum, observed for the first time. In only 3 of the total 324 cases were tubercle bacilli discovered for the first time in the sputum after the tuberculin test. The symptoms of the focal reaction lasted as a rule only 2 or 3 days, occasionally for 4 or 5. The patients were kept in the institution for a few days after subsidence of the reaction and no harm resulting from the test was ever discovered. Later examinations have also confirmed the precision of the focal findings as three-fifths of the patients showing traces of a focal reaction have grown worse in the interim, notwithstanding sanatorium treatment, while the condition has persisted unchanged in almost every one of the cases not displaying any evidence of a focal reaction, although none has had sanatorium treatment. The reaction at the point of injection of the tuberculin, the *Stichreaktion*, did not parallel the other findings in most cases and does not seem to have decisive diagnostic value.

Münchener medizinische Wochenschrift

July 5, LVII, No. 27, pp. 1425-1480

- 119 *Ch über Chlorose.) P. Morawitz.
120 Tr Ehrlich's "Substance 606." (Be-
t dem neuen Ehrlich-Hataschen
B. Schreiber und J. Hoppe.
121 Bacteriologic Examination of the Blood. (Zur Methodik der
kulturellen Blutuntersuchung.) W. Meyerstein and L. B.
Rosenthal.
122 Influence of Senna on the Digestive Movements. (Einfluss des
Sennainfuses auf die Verdauungsbewegungen beim Men-
schen.) E. Stierlin.
123 *Resection of Posterior Spinal Roots in Spastic Paralysis.
(Ueber die Förster'sche Operation.) A. Codivilla.
124 *Idem in Tabetic Crises. (Zur Behandlung tabischer Krisen mit
Resektion der hinteren Wurzeln.) H. Flürcken.
125 Chemical Theory for Action of Anesthetics. (Eine neue
Theorie der Narkose.) K. Bürker.
126 Elimination of Radioactive Substances in the Urine. C.
Ramsauer and A. Caan.
127 Radium in Treatment of Rheumatic Pains. J. Görner.
128 Formation of Beta-Oxybutyric Acid in the Animal Organism.
(Bildung von Beta-Oxybuttersäure im tierischen Organ-
ismus.) H. D. Dakin (New York).
129 Drug Eruptions as Expression of Idiosyncrasy and Anaphy-
laxis. (Arzneiexantheme als Ausdruck von Idiosynkrasie
und Anaphylaxie.) E. Klausner.
130 *Three Methods for Rapid Staining of Living Spirochetes. E.
Meirowsky.
131 *Two Cases of a Tendency to Gangrene after Tincture-of-
Iodin Sterilization of the Skin. W. Hindenberg.
132 *Action of Roentgen Rays on Tumors. (Wirkung von Röntgen-
strahlen auf Geschwülste.) R. Werner and A. Caan. Com-
menced in No. 25.

119. Chlorosis and Its Treatment.—Morawitz protests against the assumption that chlorosis is essentially an anemia; in 28 girls with the classic clinical picture of chlorosis whom he has examined in the last six months, the proportion of hemoglobin was above 80 per cent. in nearly all, not below 60 in any, and frequently over 90 per cent. Notwithstanding this normal or nearly normal composition of the blood, the patients presented the typical symptoms of chlorosis and nearly all were cured by iron. He concludes from these and other experiences of the kind that the anemia is not the essential feature of chlorosis but only one among other symptoms. It is much more probable, he thinks, that defective or excessive functioning of the ovaries or some inter-related ductless gland is at the root of all the syndrome; the ovary alone cannot be responsible as ovarian organotherapy has not given encouraging results. Giudiceandrea has recently reported enlargement of the thyroid gland in fully 50 per cent. of his chlorotic patients examined. The fact that chlorosis develops exclusively during puberty is also suggestive in this line, as also that chlorosis may recur again and again in those who had it at puberty. Seiler found the hemoglobin percentage only 10 or 15 below normal in 51 cases of chlorosis, and all the symptoms disappeared under iron in 30 of the patients. He calls this condition "masked chlorosis;" among the 21 who were not cured by the iron were 12 girls with incipient apical tuberculosis. The iron evidently acts on the primary cause of the trouble; it is absurd to suppose, Morawitz declares, that the mere loss and recovery of such a minute hemoglobin percentage as the difference between 80 and 90 per cent., could elicit and banish the train of symptoms we call chlorosis.

123-124. Resection of Posterior Spinal Roots in Treatment of Spastic Paralysis and Painful Crises in Tabes.—Codivilla

reports a severe case of spinal spastic paralysis in a well nourished girl of 15 in which a little benefit was derived from resection of the second sacral and fifth and third lumbar roots on the left and of the second sacral and fifth lumbar on the right. He is convinced that the improvement in this case might have been attained equally well with the ordinary orthopedic operations, tenotomy, etc. The results might have been better, he remarks, if more of the roots had been resected. There seems to be a tendency to atrophy of the muscles on the side on which most roots were resected. Flürcken reports complete success from resection of the seventh to tenth dorsal roots inclusive in a case of painful crises involving the spine and thorax, the syndrome like that of exceptionally severe trigeminal neuralgia. The whole syndrome was cured by cutting off the region from communication with the central nervous system by resection of the spinal roots involved. Flürcken ascribes to Abbe of New York and Bennet, in 1888, the first suggestions of resection of the spinal roots as a means of curing violent neuralgia. Chipault in 1895 endorsed their suggestion, and Munro reported in THE JOURNAL in 1904 two cases of laminectomy and division of the posterior roots, but Foerster and Küttner first applied the method on a systematically outlined plan.

130. Simple Staining Technic for Living Spirochetes.—Meirowsky mixes methyl violet with a few drops of physiologic salt solution and rubs the colored mixture vigorously into the ulcerated primary sore or condyloma. As serum oozes it is found to contain the spirochetes stained a bright violet. The depth of the stain depends on the concentration of the coloring mixture; it works best when it is of such strength that the lipid envelop of the red corpuscles is a deep bluish violet tint. The refringens assumes a bluish violet tint, easily distinguished from the bright violet stain of the pallida.

131. Gangrene after Iodin Sterilization of the Skin.—Hindenberg reports two cases of an ax injury of the toes while splitting wood, in both of which he applied tincture of iodine according to the customary technic. When the dressings were changed two days later there were signs of commencing gangrene which he ascribes to penetration of the iodine into some gaping vessel entailing destruction of the vessel walls and consequent gangrene. The cases warn, he adds, against applying the tincture of iodine method to cutting wounds unless the cut surfaces are protected with gauze against the penetration of the tincture of iodine.

132. Action of Roentgen Rays on Tumors.—This communication relates the experiences with Roentgen-ray treatment of tumors at the Heidelberg Institute for Cancer Research in charge of Czerny. A favorable influence from the rays was undeniable but it is doubtful if they will ever prove reliable alone. The method fails sometimes in the apparently most propitious cases while again in others, apparently the least encouraging, surprising benefit may be realized. Operable tumors, it is reiterated, should always be removed but in the after-treatment the Roentgen rays may be usefully applied even in combination with fulguration or thermopenetration or other measures. When applied to an open wound, the Roentgen rays seem to act more effectually than when they have to pass through the skin. When an operation is impossible from any reason then the Roentgen rays should be applied as vigorously as possible, but not if there is a chance for operative measures later as in that case the over-exposures might have an injurious influence on the healing of the wound. This applies also to cancers on the limit of operability; preliminary Roentgen exposures may render them more movable and much facilitate their removal, but in such cases Czerny is always careful not to expose the region enough to induce much eczema. In the absolutely inoperable cases Roentgen treatment should be given a trial in every case, it is stated, as surprises in a favorable direction are always possible. But if only an aggravation follows the first set of exposures (5 or 6 H units over every point of the surface), it is useless to continue the exposures as when this was observed further exposures had no favorable influence in such cases. Especially unfavorable experiences in this direction were encountered with carcinomas of the mouth, tongue

and parotid region. Apparent success at first is not always a precursor of a definite cure; the melanomas were most disappointing in this respect, and certain cases of lymphosarcomas. After surprising retrogression of the tumors at first, they then entered a phase in which they ceased to be influenced by further exposures. The aim in Roentgen treatment is not to induce necrosis of the cancer but merely an elective injurious influence on the pathologic cells, destroying their vitality and leaving them in a form permitting their absorption, while at the same time the rays have a stimulating action on the neighboring tissues, starting proliferation in them. Unless the adjacent tissues are able to absorb the destroyed tumor cells, their destruction does no good. One great difficulty with Roentgen treatment of cancer, it was found, is that the different elements of the lesion possess a varying susceptibility to the rays; this difference may be striking even from cell to cell. Homogeneous radiosensitivity of the cancer, surpassing that of adjoining tissues, is the *sine qua non* of success.

Wiener klinische Wochenschrift, Vienna

July 7, XXIII, No. 27, pp. 991-1024

- 133 Etiology of Suppurative Follicular Enteritis. H. Albrecht.
- 134 Edema after Operation for Stenosis of the Pylorus: Three Cases. A. Jhanu.
- 135 Tonsillectomy. (Ueber die Radikaloperation der Tonsille.) S. Tenzer.
- 136 Spiral Test of Cutaneous Sensibility. (Eine Spiralprüfungsmethode mit dem Pinsel zur Abgrenzung berührungsanästhetische und berührungshypästhetischer Hautstellen.) M. Löwy.
- 137 Spinal Anesthesia by Jonnesco's Technic in 50 Cases. (Ueber die Medullaranästhesie nach Jonescu.) P. de Favento.
- 138 Historical Sketch of Hemostatic Measures. (Zur Geschichte der Blutstillung im Altertum und Mittelalter.) E. F. Heeger.

Zentralblatt für Chirurgie, Leipsic

July 9, XXXVII, No. 28, pp. 929-952

- 139 Inflammation of the Scaploid Bone Generally Entailing Fracture. (Eine typische posttraumatische und meist zur Spontanfraktur führende Ostitis navicularis carpi.) G. Preiser.

Zentralblatt für Gynäkologie, Leipsic

July 9, XXXIV, No. 28, pp. 929-976

- 140 Treatment of Placenta Previa. W. Sigwart.
- 141 Technic of Rhachiotomy. (Verschiebte Querlage—Küstner's Rhachiotom.) H. Küster.
- 142 *Childbirth after Suprasymphyseal Delivery. (Ueber Geburten nach suprasymphysealer Entbindung.) K. Hartmann.
- 143 *Perineotomy. (Wo ist vorteilhaft die Episiotomie zwecks Erhaltung der integrierenden Dammgebilde anzulegen?) A. Markowsky.
- 144 Decapsulation of the Kidney in Eclampsia. S. Chalmogoroff.
- 145 *Carcinoma in the Stump of the Cervix after Chrobak's Myoma Operation. H. Hinterstoisser.
- 146 Vicarious Menstruation Through Laparotomy Fistulas. E. Bircher.

142. Births after Suprasymphyseal Delivery.—Hartmann has previously reported 8 childbirths in women delivered by suprasymphyseal section and here reports 4 more cases. No mishaps were encountered in any case for which the previous operation was in any way responsible.

143. Perineotomy.—Markowsky states that v. Ott has made a practice of prophylactic section of the perineum since 1895 and now has a record of over 364 cases and is preparing a detailed and laudatory report on the method for the approaching gynecologic congress in St. Petersburg next September. He claims that the perineum is protected best by systematic incision.

145. Cancer in the Stump of the Cervix.—Hinterstoisser has had carcinoma develop in the stump of the cervix in two cases after the Chrobak supravaginal amputation of the cervix for myoma. This makes ten cases on record of this contingency but he declares that this percentage is too small to detract from the value of the Chrobak technic, although it imposes the necessity for regular and frequent examination of the woman afterward.

Zentralblatt für innere Medizin, Leipsic

July 9, XXXI, No. 28, pp. 697-720

- 147 Treatment of Serum Sickness. J. C. Schippers and J. M. Wentzel.

Gazzetta degli Ospedali e delle Cliniche, Milan.

July 3, XXXI, No. 79, pp. 826-840

- 148 Heart Disease and Tetany. (Cardiopatía e tetania.) M. Gioseff.

July 5, No. 80, pp. 841-848

- 149 Advantages of Wire to Hold Fractured Femur. (Il cerclage nelle fratture della diafisi femorale.) L. Vercelli.

July 7, No. 81, pp. 849-856

- 150 *The Albumin Reaction in Tuberculous Sputum. (L'albumino-reazione—prova del Roger—nell' espettorato tubercolare.) A. Trona.

150. The Albumin Reaction in the Sputum.—Trona applied Roger's technic in 44 tuberculous cases and 35 of various other affections and obtained positive findings only in the tuberculous cases and in 9 with heart disease and albuminuria. The sputum is mixed with salt solution and a few drops of acetic acid are added to precipitate the mucin. The whole is then stirred and filtered. The filtrate is then boiled or treated with trichloroacetic acid to reveal the presence of albumin. The albumin indicates that the sputum is not a mere superficial secretion but comes from some deep-seated inflammatory process.

Policlinico, Rome

July 17, XVII, No. 29, pp. 899-930

- 151 *Hemostasis by Inflated Tubing. (Sopra un nuovo metodo d'emostasi e sulla prolungata ischemia senza conseguenza per l'integrità dei tessuti e della loro funzione.) E. Pomponi.

151. Hemostasis by Inflating Tubing.—Pomponi uses a rubber tube 2 or 3 cm. (1¼ inches) in diameter, the ends held with forceps. Air is slowly pumped into the tube and by this means compression is exerted sufficient to arrest pulsation below without injury of the tissues, even when the compression is kept up for hours. He uses this contrivance for the Momburg belt constriction and states that the disturbances were slight and transient even after six or seven hours' application in his experiments.

Riforma Medica, Naples

June 27, XXVI, No. 26, pp. 701-722

- 152 Quantitative Formol Test for Nitrogen in Stomach Content and Its Diagnostic Importance. (Azoto titolabile col formolo nel contenuto gastrico e suo valore diagnostico.) A. Barlocco.
- 153 Treatment of Total Prolapse of the Rectum. (La cura del prolasso totale del retto.) P. Lilla.
- 154 Diagnosis of Hernia of the Bladder. (Per la diagnosi dell'ernia della vescica.) A. Arcangeli.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

NEPHROCOLOPTOSIS. A Description of the Nephrocolic Ligament and Its Action in the Causation of Nephroptosis, with the Technic of the Operation of Nephrocolopexy in Which the Nephrocolic Ligament is Utilized to Immobilize Both Kidney and Bowel. By H. W. Longyear, M.D., Professor of Gynecology and Abdominal Surgery, Detroit Post-Graduate Medical School. Cloth. Price, \$4. Pp. 251, with 86 illustrations. St. Louis: C. V. Mosby Company, 1910.

COMMERCIAL RELATIONS OF THE UNITED STATES WITH FOREIGN COUNTRIES DURING THE YEAR 1908. In Two Volumes. Vol. I. Europe. Pp. 592. Vol. II. North and South America, Asia, Oceania and Africa. Pp. 853. Cloth. Washington: Government Printing Office, Supt. of Documents, 1909.

ST. LOUIS: ITS HISTORY AND IDEALS. Prepared for the Sixty-first Annual Session of the American Medical Association, June 7-10, 1910. By Philip Skrainka, M.D., Metropolitan Building, St. Louis. Cloth. Price, 75 cents. Pp. 172, with illustrations. 1910.

THE REPORT OF THE DIRECTOR OF THE INTERNATIONAL BUREAU OF THE AMERICAN REPUBLICS TO THE FOURTH PAN-AMERICAN CONFERENCE. Held at Buenos Aires, Argentine Republic. July, 1910. Washington, D. C. Paper. Pp. 120, with illustrations.

TRANSACTIONS OF THE MISSISSIPPI STATE MEDICAL ASSOCIATION. Forty-third Annual Session, held at Oxford, April 12-14, 1910. Roll of Members, Constitution and By-Laws, and Code of Ethics. [Secretary, E. F. Howard, Vicksburg, J.] Cloth. Pp. 256.

TRANSACTIONS OF THE INTERNATIONAL MEDICAL ASSOCIATION OF MEXICO. Fifth Annual Session, held at Aguas Calientes, Agts., Jan. 25, 26 and 27, 1910. [Secretary, Dr. J. S. Steele, Monterey, N. L., Mexico.] Paper. Pp. 108, with illustrations.

SYPHILIS: ITS DIAGNOSIS, PROGNOSIS, PREVENTION AND TREATMENT. By Thomas P. Beddoes, F.R.C.S., Surgeon to the London Hospital for Diseases of the Skin. Cloth. Price, \$2 net. Pp. 224. New York: Paul B. Hoeber, 1910.

WHAT THE MAYOR AND CITY COUNCIL CAN DO IN THE PREVENTION OF TYPHOID FEVER. By L. L. Lumsden, Passed Assistant Surgeon, U. S. P. H. and M.-H. Service. Paper. Pp. 11. Washington: Government Printing Office, 1910.

TWENTY-SEVENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF INDIANA. For the Fiscal Year Ending Sept. 30, 1908. Statistical Year Ending Dec. 31, 1908. To the Governor. Cloth. Pp. 782.

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SOME ASPECTS OF THE MEDICAL CURRICULUM OF TO-DAY AND OF TO-MORROW

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That he who makes a prophecy risks his reputation, is an old adage. I accept its truth. However, only he who hath can lose. Moreover, it is not my purpose to suggest or to forecast an ideal curriculum, but simply to discuss certain aspects of present-day curricula in our stronger medical schools, and to call attention to changes which may be anticipated, or perhaps found advisable, even now. Others may be necessitated in the future—likely in the near future—while some have already been incorporated by a few of the leading medical schools of the country. It is indeed to be regretted that there is such a distance between the vanguard and the rear-guard of our medical schools, and that the curricula of many of them have undergone so few transitions outside of those necessitated by the very recent changes in requirements for admission. To be sure, change does not necessarily imply progress, but its absence surely suggests stagnation. This, I take it, applies to a certain extent to both the nature of the courses and the time devoted to them.

RIGID CURRICULA

With a few notable exceptions, one of the most prominent characteristics—yes, *the* most prominent characteristic—of the curricula of our medical schools is their rigidity. As a rule, the entire course is clearly marked out in every detail, not for one or for two years, but for four. In actual hours, this time varies from about three to seven thousand! Regardless of his previous training—or lack of it—the student is put into this educational strait-jacket from the first day of his four-years' course to the last, the strongest locking step with the weakest. His tasks are meted out to him from 8 to 9 in the morning until 5 to 6 in the afternoon, for five or even for six days in the week.

That this is not an overstatement of the facts can easily be learned by a review of the schedules themselves, and of statistics available to everyone. Few hours indeed are left to the disposal of the student, in which to find himself, to develop his own inclination, and to exercise his own initiative, to say nothing of recreation. Under these conditions the able student must abandon—or at least defer, which is frequently equivalent—any scholarly ambitions which he may cherish, unless good fortune and good health enable him to avail himself of vacation days. In this connection it is frequently urged that the curriculum must meet the needs of the general practitioner. This is true, but it is not the whole truth, nor does it follow that the best general practitioners are

produced by a trip-hammer process of education. The medical curriculum, it seems to me, can and should provide adequate training for the future general practitioner without depriving him of all opportunity to cultivate a proper scientific attitude toward his future work. I am well aware that not every country practitioner will make a Robert Koch, and that the exhausting humdrum of so-called practical routine drill, which sometimes unfortunately fills all the hours of the day and night, would never make a capable physician, much less a Koch. Yet it would be foolish to deny that the atmosphere, in which the medical student lives and the opportunity given him for the cultivation of a proper attitude toward his work often determines his later career. The cultivation of this habit cannot be deferred until practice is begun. He who comes not naturally by it, or belongs not to the few who acquire it in their pre-medical work, must of necessity, then, be given the opportunity to acquire it during his medical training. For few indeed are the noble minds and resolute souls that can keep latent, with any hope of fruitful revival, scholarly ambitions dormant for a decade.

THE NEED OF DEVELOPING THE SCIENTIFIC SPIRIT

But the general practitioner has every need of being a progressive physician. He, above all, needs that attitude which can appreciate the value of a fact regardless of any obvious relationship to pressing life-problems or its immediate utilization, to preserve him from hopeless deterioration and inefficiency. It was said long ago, and often since, that "a little learning is a dangerous thing." A broad grasp of some subject—it matters little what—is essential for the acquirement of abiding interests. But how under the stress of the present-day curriculum with its increasing multiplicity of subjects can the student "drink deep"? Hence "taste not the Pierian spring" becomes his unconscious and willing or unwilling motto.

I take it that medical students can be unmade as well as made, and that to discover and to preserve the capable is as important as to eliminate the incapable. A heroic soul may survive. Poe did; Macaulay did; Darwin did; John Hunter would have, but demurred. Unfortunately not every medical student comes to us with the curiosity of childhood preserved, yet most men after all have something of what Lichtenberg called "das rastlose Ursachenthier" in them. To preserve and to cultivate these natural endowments is a high duty and sacred privilege, it seems to me. A fuller recognition of it would, I believe, result in inestimable benefit to mankind, and redound greatly to the glory of the medical profession. Perhaps this has received tacit recognition. Open recognition is needed, however. It is no excuse to say that recent progress has been so great and the subjects so many that this is impossible. We have sev-

eral notable examples in this country which have repeatedly and long since demonstrated that it is possible to have the medical curriculum follow closely in the wake of scientific progress and yet leave room for the play of individuality. Besides, will not subjects increase and progress continue? Assuredly, the present golden days in medicine will not be followed by dark ages again! And if so, this would be all the more reason for preventing *den rastlosen Ursachenmensch* from becoming *ein gleichgültiger Maschinenmensch*.

ELECTIVE COURSES

Several of our leading medical schools have already reduced the required work, both prescribed and elective, to a minimum, and made all other work elective. Since the elective system in colleges and universities has been so fully and so ably discussed in recent years, a full discussion will here be avoided. Its dangers, I believe, can be safeguarded by the group system, and in other ways. By its introduction, well-trained and ambitious students will be given an opportunity to get more than an elementary knowledge of some subject. More thorough work is likely to result, because the student takes a more intelligent interest in his work, and is encouraged to think for himself. Departments of instruction must of necessity be better equipped in men and means to afford able students an opportunity. Hence departments barely able to afford minimum requirements will cease to exist, never having had any good *raison d'être*. For, as any tyro knows, a machine that always runs at its maximum is not an efficient or an economical one. Even the general practitioner will have better opportunities through the enrichment of the course by a number of elective and optional subjects. Courses that are not thorough will not be chosen save by the weaklings, and this again will bring its own reward to both students and professors. Individual departments will be more self-respecting, for the younger men on the staff, being assured an impartial hearing, now have every incentive to show their mettle. Being placed in direct and equal competition with all, they will often act as a powerful leaven in the whole department. These men will thus be given an opportunity to develop themselves, and to lay the foundation of a later career under the guidance of those whose disciples they are. And even if none of them prove a Huxley, yet the day is sure to come when, as Virchow said: "We are filled not alone with admiration for the hero, but at the same time with grateful recognition of the institution which planted the seed of high achievement in the soul of the youthful student."

Further criticisms—all of the friendliest kind, to be sure—are made with the greatest reserve, since they mostly concern matters outside of my own work. If, however, this imposes silence, then manifestly there can be no mutual consideration and cooperation, and hence no progress in this matter. If therefore I shall look boldly over the fence which bounds my own lane into my neighbor's field, I trust I shall not be regarded a trespasser.

PURE AND APPLIED SCIENCE

Pasteur, it will be recalled, said applied science was related to pure science as a tree to its fruit. One of the trees growing here and there which we must fertilize, water and prune, lest the command go forth, "Cut it down; why cumbereth it the ground?" is applied anatomy. There seems to be a good deal of confusion as to what applied anatomy is. In the past, tree and fruit have been confused, or even considered apart from each

other. What the great master meant, I take it, was to foster well the tree, and the fruit would appear in due season. Perhaps it is this fine conception of science which has been responsible for the absence of special courses in applied anatomy in some of our best medical schools. The want in the past, it is clear, has been in the absence of those who fostered the tree, and in the multitude of those who, fixing their eyes solely on its golden fruit, let the neglected tree wither in sterile ground before them.

ANATOMY AND SURGERY

In some schools, applied anatomy seems to be the equivalent of or limited to surgical anatomy. In others, it is transformed into topographical anatomy, or even into operative surgery or is restricted to regional anatomy. The mere fact that so much confusion exists in regard to an old subject throws a strong and very interesting side-light on the whole matter. It also suggests that in many cases probably nothing very definite, or very indispensable even to the training of the general practitioner, was included. For if it be topographic anatomy it should be called so. If, on the contrary, it be surgical anatomy that is taught, then apparently only a portion of the field of applied anatomy is covered. Since, moreover, the recent graduate is not to do any major operation, there would seem to be no adequate reason why much that is at present given under surgical anatomy should be included at all in the required work of the curriculum.

It is interesting indeed that, at a time when surgeons are unanimous in declaring that it is wholly unjustifiable for any graduate in medicine to do major surgical work without prolonged and thorough hospital training, courses in operative surgery should still be insisted on! It is true that I am not fully informed as to the details of the subject-matter covered in many of the schools. But it is known what texts are used, and that all manner of major operations on the cadaver from the vertex to the soles are frequently done before, by, and with students who have not even finished their dissections. In other cases, work on animals is introduced, and students take turns in gaining facility in the use of hemostats, by catching severed vessels quickly. As to the care of the material, and the conditions under which this work is often done, I forbear to speak. Indeed, were the schools in which these things happen less prominent I would gladly forget it. Besides, I am not concerned with the character of the work, but with the work itself. Why should any student, it may be asked, spend the precious time of an overcrowded curriculum studying the details of difficult operations in surgery? Such operations, for example, as the removal of the Gasserian ganglion (lately called Gasserectomy—poor Gasser!) prostatectomy, lateral lithotomy, pyloroplasty, intestinal anastomoses, etc., etc. These all, and many others, are often included in surgical anatomy and operative surgery.

But no matter how ideal the conditions under which this work is done, or how ably it is taught, it certainly is not consistent or excusable to teach students these things, and then to condemn them for doing them. What wonder that after such teaching recent graduates attempt to perform all manner of major operations to their own sorrow, to the discredit of their teachers and to the harm of the public. It is difficult indeed to see why able teaching in human anatomy and in surgery would not make these special courses largely unnecessary. The trend of medical education is still in the

main a practical and not a scientific one. In this connection, it may pertinently be recalled that Helmholtz and many since attribute the dominant position of Germany in medicine to the fact that the Germans had purely ideal aims for the cultivation of science without any immediate prospect of practical utility. We Americans, on the contrary, have often been credited, and rightly so, with being unusually quick to see the practical relations of facts—provided we knew of the facts—but have we been equally active or fortunate in the revelation of those facts? From these things, and from the examples of certain excellent schools, one is compelled to conclude that it would be in the interests of all to eliminate a large part or the whole of these courses, or at least to confine them to the few who become surgeons, and thus withhold such knowledge from many a young physician who might be tempted to take a chance.

TOXICOLOGY

If I have correctly understood those fully competent to speak, most graduates from college and university courses have not had sufficient training in chemistry to enable them to take up the subject of toxicology to advantage. This, to be sure, is no reflection on these institutions. If toxicology belongs to higher analytical chemistry, it must be true that a thorough training in analytical chemistry itself is a *sine qua non* for entrance on toxicologic work. I am well aware, of course, that toxicology as given in most medical schools is nothing so self-respecting or so advanced as this. Is it really toxicology, then, and should it be given apart from the other chemical work in the medical course? I do not presume to answer this, though I am well aware how able teachers in both chemistry and pharmacology regard the matter. Their opinions are available. It must be evident to everyone, though, that if toxicology, so-called, were eliminated from the medical curriculum, some future practitioners might be deterred from supposing themselves capable of acting as expert analysts in medicolegal cases. Almost every week sees some overzealous and benighted doctor of medicine making a spectacle of himself and of his profession before a court of law and before the public. While the elimination of toxicology from the list of required work would not change human nature, it might and probably would change the attitude of many a general practitioner to this matter and eliminate it from licensure tests.

SLIGHTED SUBJECTS

If the introduction of the elective principle into the curriculum be thought unwise, because of the lack of maturity and preparation on the part of students, or for other reasons, it surely would not be difficult to find substitutes for any of the above-suggested eliminations. Among the subjects of direct and material importance to the general practitioner are at least two which, according to authorities in them, have so far not received adequate attention. These are pediatrics and psychiatry. Material for instruction in these subjects is available everywhere. What is needed is the correlation of the facilities of existing institutions and the erection of special hospitals or hospital wards for childrens' diseases and particularly for mental cases.

The equipment of childrens' wards and of wards for contagious cases in childrens' hospitals would afford every medical student an opportunity to obtain firsthand knowledge of the diseases of early infancy and of the care of young children. The training so gained, in addition to that obtained in the maternity ward, and

dispensary, would equip the young physician in a way which is now largely impossible. To-day, most graduates go into practice without adequate knowledge of contagious diseases in general. For the lack of hospitals for contagious diseases the attitude of the public is no doubt partly responsible, but what can be more unfortunate or embarrassing in the career of the beginner than to see measles, chicken-pox, scarlet fever, diphtheria, etc., for the first time in his life as a student or practitioner of medicine? Unless he is tactful, mother or nurse may correct his diagnosis and seriously handicap him at the very start.

Modern civilization no longer tolerates the *tortura insomnia*, and many other relics of past barbarity, in the treatment—or what the future will call mistreatment—of mental cases, but contents itself chiefly with benevolent incarceration. Surely much less could not be done in this day. To immure the helpless patient and leave him to his own devices, or those of unskilled and untrained attendants makes not for progress. With the doors of the general hospitals barred against him, nothing but the private sanitarium remains for the patient with incipient mental disease. Under present conditions, there is written over the doors of many of these, as well as over the doors of many of our asylums, "He who enters here leaves hope behind." This would be less pathetic were it less true. And until the general hospital will admit such patients as readily as it does patients with the acute infectious diseases, the medical student at best will likely be compelled to begin his career with but a text-book knowledge of them. As a result, he is almost sure to overlook impending danger and fail to recognize the actual conditions until the catastrophe breaks on his patient.

These things have been said with some reluctance, and with full appreciation of the services of the many devoted and unselfish men, whose all too busy lives are spent in the noblest of causes. Any one who knows what is done at the present day, however, and realizes what could be done, and is done elsewhere, for the mentally afflicted, cannot help but feel the injustice and in many respects the hopelessness of the present situation.

NEW SUBJECTS

I am also persuaded that the near future will see the relegation of pharmacognosy to the pharmaceutical schedule, more emphasis placed on physiology, on psychology, and some aspects of therapeutics, and the correlation of therapeutics and pharmacology and that instruction in pathologic physiology, preventive medicine and the allied subjects of sanitary science, public health, hygiene, and vital statistics will be given. To enlarge on the necessity for these in the curriculum for the general practitioner, seems unnecessary. Moreover, it is not my purpose to do more than to call attention to their frequent absence.

The devotion of more time to some of these subjects, and the introduction of others, will greatly enrich and strengthen the medical curriculum. It will widen the horizon and broaden the grasp of the general practitioner, as well as of the future investigator. I know full well that to introduce these things will require very material additions to both staff and equipment in many cases—for no instruction is better than faulty instruction. And here may it not be said with entire courtesy that retrenchment in some of the recent expansions would seem advisable on the part of those colleges and universities which have assumed responsibility for the

conduct of a medical school, rather than to jeopardize the efficiency and to limit the usefulness of the future practitioner of medicine by a false economy? Surely this matter is too serious a one for the student, for the public and for the institutions concerned to be regarded lightly.

IMPROVEMENT ALREADY SECURED

Besides, our beacon-lights of medical education seem as yet unable to reach the eyes of all. To be sure, the progress made in the last decade is cause for much congratulation. The medical sciences have found a firm foundation, and further differentiation has already begun in clinical medicine. Moreover, the higher standards in medical education adopted through the combined efforts of the Council on Education of the American Medical Association, the Association of American Medical Colleges, state boards, and the Carnegie Foundation for the Advancement of Teaching, bid fair to have the most far-reaching and permanent effects. For, although schools with the highest standards have long exerted the best of influences, their splendid example unfortunately needed the reinforcement of publicity. They were often said to train theorists, unpractical men, good enough for teaching, while the pride of the rest was the training of the general practitioner. For him, low standards of admission and crude equipment were supposed to be sufficient. The fancied need of the general practitioner, or even the needs of various parts of the country for general practitioners of medicine, have often served as an excuse for wholly unjustifiable conditions. Against these assumptions, and against the separation of medical schools from universities, Brücke raised his voice long ago, and his words, though often unheeded, are still true.

THINGS DESIRED

Publicity of the facts has done much, and will do more. The forthcoming report of the Carnegie Foundation will no doubt mark an epoch in medical education. It is heroic treatment this, but the results will stand as an enduring monument to the credit of the medical profession with whom the movement for reform started. That this movement shall not cease till double standards in state boards, unjustifiable conditions within our schools, and many other things, are corrected, is the desire of every one who has the best interests of medical education at heart. From such, and from no other motives, the above criticisms and suggestions were made by one who is willing to sit at the feet of those who have grown great and gray in the service of medicine in this, or in any other day.

THE IMPORTANCE OF BEDSIDE TEACHING

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In this day when laboratory methods are so strongly emphasized and practiced and when there is such a surplus of theoretical teaching, let me call the attention of the medical profession, and especially the teaching branch of the profession, to bedside teaching. Teaching medical students at the bedside, while they are still in school, how to recognize a patient who is really seriously sick from one who is only mildly ill; how to recognize what the patient is suffering from; how to prognosticate as to recovery and what are the practical, the sane methods of treatment in each individual case as learned from the

actual case by individual examination—this form of teaching, which is of the utmost value, is not carried out in any of the first-class medical schools with which I am familiar.

I would urge the great value and the absolute importance to medical students of continuous and painstaking observations on the sick at the bedside, the careful examination, complete in detail, and the thoughtful, serious effort at forming conclusions when at the side of patients who are confined to their beds because of the gravity of their afflictions.

When a medical student is given his degree, it certifies that he is prepared to practice medicine and surgery, but he is not; he must spend two years or more in a large hospital or become the assistant of some busy practitioner before he is even fairly well fitted to practice his profession, because his medical work at the school has been too theoretical; because he has not seen and handled any really sick people to speak of; he has not had anything like enough of individual bedside teaching.

Work in the out-patient departments, examining one or two patients in the hospitals and writing theses on them, followed with discussions before the class, case teaching from printed slips, occasionally being called down from the amphitheater to feel a pulse, to palpate a tumor, to listen to a heart, to examine reflexes—these are valuable, but such opportunities to handle the living patients are handed out in homeopathic doses, and it is for more bedside opportunities for the medical student that I am pleading. It is of small value to look at a patient from an amphitheater and listen to a discourse, as compared to the value of having all the students divided into small groups, by means of small sections, personally studying and handling the patients.

It is not enough even to stand at the bedside with a small number of students and an instructor and listen to him talk and watch him examine, unless the individual student examines himself, not only once but many times during the course of the disease. As an illustration, the student should have abundant opportunities for feeling pulses in all kinds of sickness and in the various changes of sickness; he should learn at the bedside the significance of those changes through observation and he should after open discussion with a wise and sympathetic teacher learn to form careful conclusions; to administer himself the remedies determined on in desperate cases as well as mild cases, and to stay at the bedside and observe the results of such treatment. He should get up in the night and go to the hospital to observe changes in patients, and while there he should feel the pulse, observe temperature, examine heart, lungs, abdomen, urine, nervous systems, general appearance, whether that patient is suffering from sepsis, cardiac failure, hemorrhage, renal deficiency shock, etc., and the lessons thus learned at the bedside are not easily forgotten.

Such teaching as this I positively know is needed badly. It means much more inconvenience to teacher, student and patient, but I am certain it is worth it. We should not stop at this extra inconvenience if it will make better and safer servants of the sick. With tact and good management in the distribution of cases there would be little more objection from patients, and with the advent of university hospitals and students living near by, such bedside teaching could be carried out.

We can say that the hospital internship solves the question; but a large percentage of medical students on graduation do not see their way clear to spend one or two years in a hospital, and besides there are nothing like

and the symptom-complex cannot be explained on the theory of an accompanying bacterial infection.

The caterpillar hairs are more or less pointed, tubular structures, which are either needle-like and rigid or worm-like and flexible. Their surface is either smooth or covered with barbs or spinules. They are composed of a chitinous substance, which surrounds the medullary canal. Into this canal the secretion of the gland is emptied. The hairs are very numerous and easily detached. Owing to the fact that the barbs all point upward the hair must enter the tissues base foremost.

Formic acid, which plays such an important part in insect poison, has been proved to be present in the gland secretion (Fabre). When the hair enters the tissues more or less toxin escapes from the medullary canal, and the initial symptoms are produced. The course is chronic—may cover months or years. According to Teutschlaender,⁹ the latent period, interrupted by acute exacerbations, are so characteristic of the disease that he agrees with Meixner¹⁶ that it is almost pathognomonic for ophthalmia nodosa. Recurrences have been reported at periods of time varying from four days (Natanson's¹⁷ case) to over three years (Stargardt's⁷ case). The patient in the latter case had the first recurrence one month after the time of infection, the third attack three years later, and the fourth after another month. According to different theories, the recurrences may be owing to a new infection; the wandering of a non-encapsulated hair; or to chemical action. Hillemann,⁴ Lawford⁶ and Teutschlaender⁹ all agree that from an analysis of the clinical observations it would seem that in addition to the mechanical irritant another agent must be present, which gives to the clinical history its peculiarity, and they believe that the idea of a chemical toxic agent best explains not only the clinical manifestations of the initial attack, but is the cause of the recurrent attacks as well. The details of the process as given by Teutschlaender⁹ are as follows:

The initial inflammation subsides, some of the hairs being eliminated, while those remaining behind have their mechanico-chemical irritation hindered through the process of infiltration and encapsulation. But so long as the foreign body or its poisonous substance have not been absorbed or eliminated the process is not permanently stopped. Either there is an intensification of the poison, or else the protection of the tissue is weakened. The tissue changes, which during the inflammatory period caused a halt in the work of the etiologic factor, undergo a certain metamorphosis during the latent period. The edema and cell infiltration disappear and the protection is lessened. At the same time changes are taking place in the hair. The chitin-layer is being absorbed and larger openings in the medullary canal allow the poison to escape and the chemical agents to accumulate at the inner part of the nodule. When a sufficient amount has accumulated, or the protection is weakened or gone, an irritation is set up and the reaction appears, resulting in a recurrence of the initial process. This cycle goes on until the poison has all been carried off, when the hair remains in the tissue as an unirritating foreign body.

While the clinical picture of ophthalmia nodosa is characteristic, the anatomic changes are not. The first change is an intensely active hyperemia soon associated with round-celled infiltration which appears especially

in the direction of the foreign body and is accompanied by more or less edema. Those hairs which are superficially situated and circumscribed by the cell infiltration may be pushed out when healing follows. The mechanico-chemical action calls forth a cell diapedesis and proliferation until a sufficiently protecting wall is built up. While in the early stage of the nodule formation round-celled leucocytes are the predominating element, later epithelioid and giant cells are added.

The conjunctiva is the most frequent site of infection and it is here that the typical nodules so suggestive of tubercle are formed. The number of nodules varies greatly—in one case twenty-seven were demonstrated (de Schweinitz and Shumway⁸). They are grayish-yellow in color and between them there is marked congestion of the conjunctival and episcleral vessels.

In the cornea, the pericorneal injection appears almost immediately, and on the third day the infiltration is noticeable. While the areas of infiltration are well defined, they are not elevated as is the case in the conjunctiva and iris. This is owing to the fact that the cornea is non-vascular (Teutschlaender⁹).

The iris is far more frequently affected than the cornea. The hair perforates the cornea either through the force of the fall of the caterpillar or through the rubbing of the eye by the patient. With one part still sticking in the cornea, the hair may bridge the anterior chamber and by means of its spinules become attached to the iris, which by its movements in dilating and contracting may draw the hair away from the cornea. At the point of entrance of the hair into the iris hyperemia and swelling occur, followed by cell infiltration, resulting in the formation of a nodule. In most cases the reaction is not severe enough to jeopardize the vision, although in one reported case an iridochorioiditis plastica followed with blocking of the pupil, and in another the eyeball shrunk, resulting in phthisis bulbi.

One patient (Kruger's), as observed by Reis,¹⁸ twelve years after the occurrence of the infection, showed seven scars in the conjunctiva, one nodule in the episclera (from which a well-preserved hair was extracted), an opacity in the cornea (from which a hair was removed), and in the chorioid a Y-shaped streak of chorioidal degeneration bordered with pigment with a greenish reflex at one extremity, which Reis thought probably was a hair. The following report is of my case:

Patient.—H. S., male, aged 33, first came under observation in April, 1906, with the history of having had recurrent attacks of very severe pain and redness in the right eye at intervals of about 30 days, from October, 1905. The first attack came on with excessive lacrimation, severe pain and some swelling. After 3 or 4 days the more severe symptoms disappeared, though the eye remained irritable throughout the entire course of the affection. At this time all the history I was able to obtain was negative. Later, however, after 3 months' unsuccessful treatment, when asked if he had had anything to do with caterpillars, he replied: "Last October the caterpillars were so thick in our apple trees we had to burn them out." On closer inquiry, it was found that his first attack came on immediately after the trees had been freed of the caterpillars, but the patient himself did not associate in any way the work done on the trees with the disturbance in his eye. There was no history of having been struck in the eye, so the infection must have been from the free hairs.

Examination.—The eyelid was slightly swollen and the conjunctiva congested. With oblique illumination there could be plainly seen 5 areas of infiltration, situated in the superficial layers of the cornea. One was 1 by 3 mm. in size, running horizontally at the level of the upper pupillary margin. The other four, from 1 to 2 mm. in diameter, were situated in the

16. Meixner: Ein Beitrag zur Kenntniss der Raupenhaar-Ophthalmie. Inaug.-Diss., Erlangen, 1901.

17. Natanson (Moskau): Bindehaut- und Hornhautentzündung in Folge Verletzung des Auges durch eine behaarte Raupe. Klin. Monatsbl. f. Augenh., 1897, xxxv.

18. Reis: Ueber eine eigenthümliche Aderhautveränderung nach Ophthalmia nodosa, Arch. f. Augenh., 1902, xlii, 250.

Number.	Reported by	Date.	Anamnesis of Caterpillar.	Species.	Hair Demonstrated.	Tissues Affected.	Nodules.	Time Between Accident and First Consultation.	Recurrences.	Month of Injury.
1	Pagenstecher ¹	1883	No.....	Not determined.	Yes	Conjunctiva and iris.	26 nodules.....	5-6 months.	4 weeks.....	August or September.
2	Bass ³	1883	Yes.....	<i>Cnethocampo processionea</i> .	Yes.....	Conjunctiva.....	None.....	Few days.	None.....	July.
3	Bass ³		Yes.....	<i>Cnethocampo processionea</i> .	No.....	Conjunctiva.....	None.....	Few days.	None.....	July.
4	Weiss ¹⁹	1889	Yes.....	<i>Bombyx pini</i>	Yes.....	Iris.	Several.....	6 months.	4 months.....	June.
5	Wagenmann ⁴	1890	Yes.....	<i>Bombyx pini</i>	Yes.....	Conjunctiva and iris.	Conjunctiva, 2-3 nodules; iris, 2 nodules.	4 months.	None.....	September.
6	E. Kruger ⁵	1891 and 1892	Yes.....	<i>Bombyx rubi</i>	Yes.....	Cornea, iris, conjunctiva.	Cornea, several; iris, several; conjunctiva, 12.	4 months.	6 months.....	September.
7	E. Kruger ⁵		No.....	<i>Bombyx rubi</i>	Yes.....	Conjunctiva and iris.	Not stated.....	2 months.	None.....	September.
8	E. Kruger ⁵		Yes.....	<i>Bombyx rubi</i>	Yes.....	Conjunctiva, iris, cornea.	Conjunctiva, many; iris, 1 nodule; cornea, 1 hair.	6 months.	None.....	September.
9	Becker ¹³	1892	Yes.....	<i>Bombyx rubi</i> or <i>Bombyx pini</i> .	Yes.....	Conjunctiva and iris.	Conjunctiva, many nodules; iris, several.	3 months.	None.....	September or October.
10	Hillemann ⁴	1894	Yes.....	<i>Bombyx rubi</i> , probably.	Yes.....	Conjunctiva, subconjunctiva, cornea and iris.	Conjunctiva, 3 nodules; subconjunctiva, 3 nodules; iris, 2 nodules.	5 months.	None.....	August.
11	Hummelsheim ¹⁹	1894	Yes.....	Not determined.	Yes.....	Conjunctiva, iris.	Conjunctiva, 14 nodules; iris, 3 nodules.	3-4 weeks.	6 weeks.....	October.
12	Stürmann ²⁰	1894	Yes.....	Not determined.	Not stated.	Conjunctiva and iris.	Several.....	Same day.	None.....	Not stated.
13	Elsching ²¹	1895	Yes.....	<i>Cnethocampo processionea</i> , probably.	Yes.....	Conjunctiva and cornea.	Cornea, several vesicles containing hair.	4 hours...	None.....	June.
14	J. B. Lawford ⁶	1895	Yes.....	<i>Bombyx rubi</i>	Yes.....	Conjunctiva.....	Several.....	2 weeks...	4 months.....	September.
15	Hanke ¹⁴	1896	Yes.....	<i>Bombyx rubi</i>	Yes.....	Conjunctiva and cornea.....	2 in lower fornix, several on bulbar conjunctiva.	Several days.	Recurred in 10 days; again in 2 weeks.	October.
16	Boström ¹⁵	1897	No.....	Not determined.	Yes.....	Cornea, scleral margin.	Limbus, 1 large nodule.	2 weeks...	None.....	Not stated.
17	Vossius ²²	1897	No.....	Not determined.	Yes.....	Sclera.	1 large nodule.....	Not stated.	None.....	Not stated.
18	Knapp, Geo. ²³	1897	Yes.....	Not determined.	Yes.....	Episclera, iris and cornea.	Iris, 1 nodule; episclera, 3 nodules; cornea, infiltrated.	Several days.	Repeated attacks for 3 months.	June.
19	Knapp, Geo. ²⁴		No.....	Not determined.	Yes.....	Ocular conjunctiva.	3 nodules.....	2 weeks...	None.....	Sept.
20	Knapp, Geo. ²⁵		Yes.....	Not determined.	Yes.....	Ocular conjunctiva and cornea.	Conjunctiva, 4 hairs; cornea, 2 hairs.	2 days....	None.....	September.
21	Colburn ²⁴	1897	Not stated.	Not determined.	Yes.....	Conjunctiva, cornea and anterior chamber.	Conjunctiva, 1 hair; cornea, 1 hair; anterior chamber, 1 hair.	Not stated.	None.....	Not stated.
22	Nathanson ¹⁷	1897	Yes.....	Not determined.	No.....	Cornea and conjunctiva.	Conjunctiva, 7 nodules; cornea, vesicles.	1 day.....	Recurred in 4 days; again in 10 days.	July.
23	Bayer ²⁵	1900	Yes.....	Not determined.	Yes.....	Cornea and iris.....	Cornea, 3 nodules; iris, several.	Some days.	None.....	Not stated.
24	Reis, W. ¹⁹	1900	No.....	Not determined.	Yes.....	Conjunctiva, cornea, iris, episclera and sclera.	14 nodules; 3 in iris.	6 weeks...	1 week.....	July.
25	Meixner ¹⁶	1901	Yes.....	Not determined.	Yes.....	Conjunctiva, bulbi and iris.	Several nodules.....	40 days...	Recurred.....	September.
26	Denig ²⁶	1901	Yes.....	Spinning <i>Bombycina</i> (<i>Orygia pudibunda</i>).	Yes.....	Conjunctiva.....	Several vesicles.....	1 month..	None.....	July.
27	Stocké ²⁷	1902	Yes.....	Not determined.	No.....	Conjunctiva.....	1 pea-sized vesicle.....	1 or 2 days.	None.....	Not stated.
28	Reis, W. ¹⁹	1902	Yes.....	<i>Bombyx rubi</i>	Yes.....	Conjunctiva, iris, cornea, episclera, chorioid.	Episclera, 1 nodule; conjunctiva, 7 nodules; cornea, 1 hair; chorioid, 1 hair.			
29	Stargardt ⁷	1903	Yes.....	Not determined.	Yes.....	Conjunctiva, iris, sclera and cornea.	Conjunctiva, many nodules; cornea, hair.	2 months..	1 month; 1 year; 1 month later.	May.
30	Stargardt ⁷	1903	No.....	Not determined.	Yes.....	Iris and cornea.....	Iris, 1 nodule.....	5-6 weeks.	10 days.....	Feb.
31	Stargardt ⁷		Yes.....	Not determined.	Yes.....	Cornea.....	Cornea, hair; no nodules.	Several days.	None.....	August.
32	Stargardt ⁷		Yes.....	Not determined.	Yes.....	Cornea.....	Cornea, hair.....	2 days....	None.....	August.
33	de Schweinitz and Shumway ³	1904	No.....	<i>Spilosoma virginica</i> (<i>Bombyx</i>).	Yes.....	Conjunctiva.....	27 nodules.....	Few days.	None.....	July.
34	Valude ²⁸	1904	Yes.....	Not determined.	Yes.....	Cornea.....	Several.....	3 months..	None.....	Dec.
35	Solva ²⁹	1905	Yes.....	Not determined.	No.....	Cornea and iris.....	Cornea, yellowish ulcers.	Not stated.	4 months.....	Not stated.
36	Teutschlaender ⁹	1908	Yes.....	<i>Bombyx rubi</i>	Yes.....	Iris and conjunctiva.	Conjunctiva, many; iris several.	2½ months.	5 weeks.....	September.
37	Marlow ³⁰	1910	Yes.....	Not determined.	Yes.....	Conjunctiva and sclera.	6 nodules.....	3 months.	None.....	September.
38	Parker, W. R.....	1910	No.....	<i>Bombyx rubi</i>	Yes.....	Cornea.....	5 nodules.....	6 months..	3, monthly.	October.

* Kruger's case reported 12 years later. It is not included in the summary as a separate case.

19. Reis (Bonn): Ein neuer Fall von Ophthalmia nodosa (Saemisch), Klin. Monatsbl. f. Augenh., 1900; Hummelsheim's case is mentioned in detail. This case was treated in Bonn in 1894, and reported in the publications of Niederrheinischen Gesellschaft für Natur- und Heilkunde and is only shortly referred to in Centrallbl. f. Augenh. (Hirschberg's).

20. Stürmann: Ueber Entzündungen insbesondere Augenentzündungen, hervorgerufen durch Raupenhaare, Inaug.-Diss., Berlin, 1894.

21. Elschnig (Graz): Augenentzündung durch Eindringen von Raupenhaaren (Keratitis punctata superficialis), Klin. Monatsbl. f. Augenh., 1895, xxxiii.

22. Vossius: Ueber die durch Raupenhaare bedingten Augenaffektionen, Ztschr. f. pract. Aerzte, 1897, No. 6, p. 429.

23. Knapp: Ophthalmia nodosa, Am. Jour. Ophth., 1897, p. 247.

24. Colburn: Case reported in the discussion of Dr. Knapp's paper, Am. Jour. Ophth., 1897, xiv, 252.

25. Bayer: Ein Fall von Raupenhaar-Ophthalmie (Ophth. nod. Saemisch), München. med. Wchnschr., 1900, p. 730.

26. Denig: New York Med. Monatsch., October, 1901, xlii, 449.

27. Stocke: Augenentzündung durch Raupen, Ophth. Klin., 1902, No. 1.

28. Valude: Ophthalmia Nodosa, Ann. d'Ocul., March, 1905, p. 80.

29. Solva: Un Cas d'ophthalmia nodosa, Dauphiné méd., 1905, xxix, 337.

30. Marlow: Report of a Case of Ophthalmia Nodosa, Arch. Ophth., April, 1910.

upper third of the cornea about midway between the pupillary margin and the limbus. The epithelial layer was intact, the infiltrated area apparently involving the basement membrane. The cornea between the areas of infiltration was clear except immediately adjoining the opacities where it was slightly clouded.

Treatment.—When I first saw the patient he was not suffering severely, and the possibility of caterpillar hairs being the etiologic factor did not occur to me. A careful examination did not reveal the presence of the hair, but after seeing the man in one of his acute attacks when the pain was severe, photophobia intense and the pericorneal injection marked, and the cornea had become striped about the large area of infiltration, I determined to curette the indurated areas. From the scrapings I recovered the small hair shown in Figure 1, eight months after the first attack.

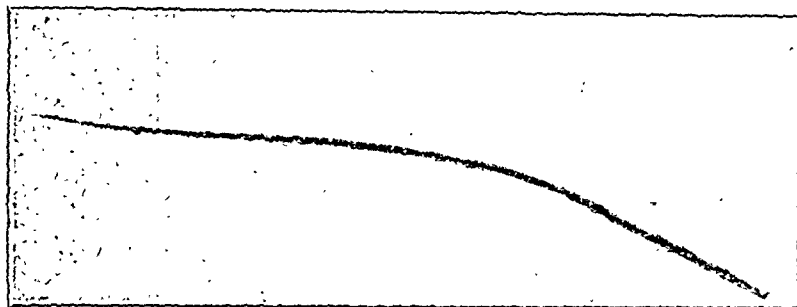


Fig. 1.—Photomicrograph of hair removed from eye of author's patient. $\times 62$.

Species of Caterpillar.—In September, I asked the patient to bring me a caterpillar like those he burned out of the trees the year before. This he did, and the hair shown in Figure 2 was taken from the specimen which was classified as the *Bombyx rubi*.

Result of Treatment.—In a comparatively short time the patient was well, although some thin scars were left in the cornea at the site where the hairs were removed. As none of the scars were central his vision was unimpaired.

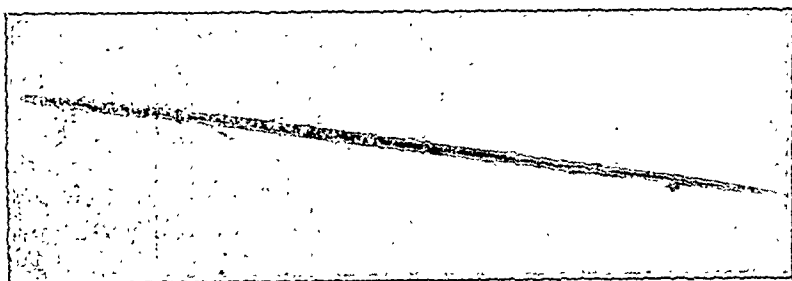


Fig. 2.—Normal hair of caterpillar. $\times 31$.

In the accompanying table the cases of ophthalmia nodosa are arranged chronologically. The table contains, so far as I am able to determine, all the accepted cases reported to this date.

In a majority of cases there is a history of injury to the eye by a caterpillar; in the absence of this history there is one of sudden onset of the symptoms, consisting of pain, more or less severe, much photophobia and lacrimation. These symptoms tend to subside after a few days, but do not entirely disappear. In the course of a few weeks an exacerbation of all the symptoms occurs. The time between the date of infection and the first consultation varied from four hours to six months. The period of time that elapsed between recurrent attacks varied from four days to three years.

The different tissues of the eye affected were as follows:

1. Conjunctiva: 24 cases = 62.1 per cent. of 37 cases.
2. Cornea: 18 cases = 48.6 per cent. of 37 cases.
3. Iris: 16 cases = 43.2 per cent. of 37 cases.
4. Cornea, only: 4 cases = 10.8 per cent. of 37 cases.
5. Sclera: 3 cases = 8.1 per cent. of 37 cases.
6. Episclera: 2 cases = 5.4 per cent. of 37 cases.
7. Choroid: 1 case = 2.7 per cent. of 37 cases.

In every case reported, there was either a definite history of injury with a caterpillar or the presence of a caterpillar hair was demonstrated. There was a history of injury in 27, or 73 per cent., of the cases, while the hair was demonstrated in 32, or 86.4 per cent., of the cases. The species of the offending caterpillar was determined in 16, or 50 per cent., of the cases in which the hair was found.

The following species of the caterpillar were demonstrated: *Bombyx rubi*, 10 times; the *Knethocampa processionea*, 3 times; the *Bombyx pini*, 2 times; and the spinning *bombycina* and the *Spilosoma virginica*, each, once.

The treatment adopted in the reported cases has been in the main symptomatic. The local remedies employed have been those usually prescribed in the treatment of iritis. The resemblance of the corneal lesions to those found in keratitis punctata superficialis of Fuchs has led in some cases to the administration of mercury, but without results. Operative treatment has been limited to iridectomy, to combat iritis or increased tension, and for the excision of nodules and hairs.

The prognosis in ophthalmia nodosa should be guarded. It will depend on the tissues involved, the severity of the case, and the extent of the structural change present.

I wish to acknowledge the assistance rendered me by Dr. George M. Waldeck in the preparation of this paper. (Chamber of Commerce Building.

PRIMULA DERMATITIS*

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MILWAUKEE

That the primula or primrose, a flowering plant found in many homes as a floral decoration, is frequently the cause of a dermatitis of more or less severe degree, is a fact not sufficiently recognized by the medical profession.

In this country attention was first called to the poisonous property of the species of primula known as *Primula obconica*, by J. C. White¹ in 1889 and again in 1890, when several cases observed in florists were reported.² With the exception of case reports by Denston³ and Sweet,⁴ there have been no further contributions to this subject by American writers, and in the consideration of dermatitis venenata in the latest dermatologic text-books the primula is either omitted entirely or is barely mentioned. This is in marked contrast to the large number of articles on this subject which have appeared in recent years, especially in English and German medical and botanical journals. The distribution of the primula in American homes is almost universal during certain seasons, and is certainly as wide-spread as in England and on the Continent, thus giving an equal opportunity for the development of cases. The discrepancy in the number of cases reported in this country is therefore perhaps attributable to a lack of appreciation of the primula as the possible cause of some forms of dermatitis remaining grouped under the term eczema. I venture to assert that a more wide-spread knowledge of the toxic properties of this plant will shed

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Garden and Forest, 1889.

2. Boston Med. and Surg. Jour., 1890, p. 425.

3. Med. Summary, 1903, p. 227.

4. THE JOURNAL A. M. A., July 27, 1907, p. 329.

light on the etiology of many instances of so-called recurrent "eczema," and of cases of "mild erysipelas," basing this on my experience following the presentation of a case of primula dermatitis before a local medical society in 1903. For some time thereafter I was frequently informed by general practitioners of the discovery of cases of primula dermatitis which had masqueraded unrecognized under the convenient term of eczema, (until the primula as a possible causative factor had been brought to their attention).

My personal experience with the dermatitis produced by the primula would indicate that it is not at all infrequent, as it comprises some forty or fifty cases, of all grades of severity and extent, observed during the past seven years. In addition I have learned from others of the existence of many instances of this affection, so that I now constantly hold the primula under suspicion when inquiring into the cause of a dermatitis. In this connection the remarks of Jadassohn⁵ are very pertinent, when he says:

In the past few years the best known—but still not sufficiently well known—inflammations have been those produced by some species of the primula in individuals with an idiosyncrasy toward this plant, affecting especially the hands and face (even with iritis), constantly recurring in acute form or appearing in a more chronic manner with exacerbations. Whoever has once experienced how much an "eczema" for years always appears at a definite time, tortures the patient, is treated unsuccessfully by all possible methods, subsides on rest in bed, and immediately reappears when the patient again goes about (because the care of the plant is resumed), and finally disappears entirely after disposing of the primula, will never again forget to search for the most varied external causes in eczemas of every description.

TYPES OF PRIMULA DERMATITIS

From the observation of any considerable number of cases it is apparent that the dermatitis caused by the primula presents itself chiefly in three types, depending on the degree of idiosyncrasy. Those possessing a well-marked idiosyncrasy to the toxic principle respond with an intense inflammation, erythematous-vesicular in character, at times with the formation of bullæ, and accompanied by more or less swelling. Others develop an erythematous-vesicular or erythematous-squamous eruption of a less acute type, with considerable infiltration, after repeated attacks, and scaling continued over a long period. Again, in others an intensely itching or burning sensation confined to the pulps of the fingers, which are puffed, tense, and slightly reddened, may be the only evidence of reaction.

The clinical picture of the highly inflammatory type in all its details is well presented in the following notes from the case of a housewife, aged 58 (?) made when the attack was of sixteen hours' duration.

On the face, from level of zygoma to border of jaw, are blotchy, irregularly outlined, erythematous patches extending over cheeks and jaws, converging on the chin, but leaving nose and ears unaffected. On the central part of the left cheek is a dollar-sized patch of closely crowded, almost coalescent, peculiarly angular and flattened vesicles, with clear contents, resembling drops of dew. In the labiomental furrow and extending upward to midpoint of lower lip is an intensely erythematous and slightly puffy area with a central group of small, closely set, angular vesicles. There is no glandular enlargement. The eyelids are not affected.

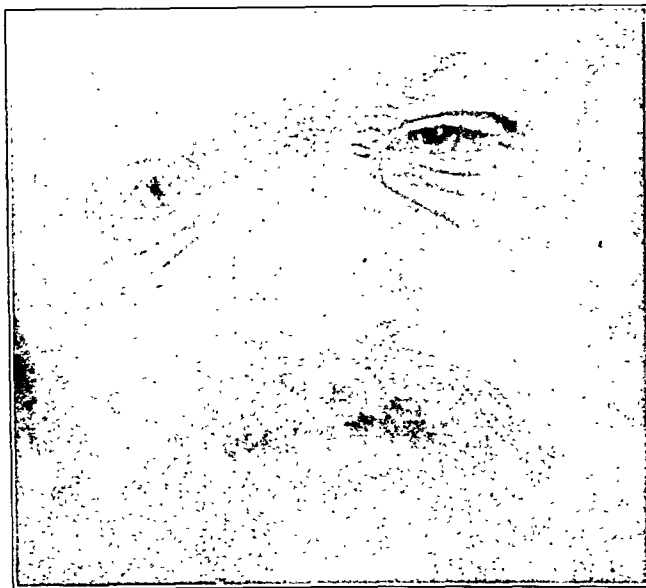
The dorsum of the left hand is puffed up with an elastic, cushion-like swelling, extending to the ulnar border, over the dorsal and lateral surfaces of fingers, and slightly to the pal-

mar surface of the fingers. The swelling prevents closing of hand. A ring on the third finger is almost hidden in the fold of edema. On the dorsum and lateral surface of ring finger are three tensely filled bullæ with rounded summits and clear contents. Two bullæ are each 1 inch long and $\frac{3}{8}$ inch wide; the third is round, $\frac{3}{4}$ inch in diameter. On the dorsum of the middle finger is one bleb, $\frac{3}{4}$ inch by $\frac{3}{8}$ inch. There are no vesicles on hand or other fingers.

The dorsum of the right hand shows a pale, elastic swelling, extending over dorsum of fingers, without erythema, vesiculation, or bleb formation. The palms of both hands are unaffected, but perspire excessively.

On both forearms, more on extensor than on flexor surface, and extending upward to within two inches of elbow, is a blotchy, unevenly distributed, rose-red erythema with irregular margins, with intervening areas of normal skin. The eruption on the two arms is of equal intensity, and erythematous throughout. The remainder of the body is not involved. There is intense itching and burning, especially on lateral surface of fingers.

In other instances the reaction may be of an abortive papulo-vesicular type on an erythematous base, or simply erythematous or urticarial in character, though the latter has been very infrequent in my experience.



Primrose dermatitis, chronic type, infiltrated and scaling dermatitis.

The cases which might be termed chronic, owing to repeated attacks at short intervals, present an appearance of acute exacerbation of an infiltrated and scaling dermatitis. On the face the skin is thickened and thrown into folds, especially about the eyes, yellow-red in color and covered with closely adherent, thin scales. Vesiculation during acute attacks is imperfect and small denuded areas, slightly edematous, exude thin serum which dries into gummy, yellow crusts. The active inflammatory process appears as though focused in limited areas, without outlying reaction, and as if it were superimposed, giving an appearance of artificiality to the clinical picture, which is often quite striking.

An analysis of the cases as to age, sex, occupation, and the like, is not only of interest, but reveals some points of value in diagnosis. As the dermatitis results from direct contact with the plant it naturally follows that florists, gardeners, housewives and servants are most prominent in the list of those affected; that females are more often affected than males, and that children almost never develop the dermatitis. I observed several cases

5. Deutsch Klin., x, 146.

among the members of a religious sisterhood, and in merchants who made a hobby of cultivating flowering plants.

OCCURRENCE

The primula is hothouse-grown and its growth is forced for its sale during the holiday seasons of Christmas and Easter, though it is in the market at all times. Consequently the great majority of cases developed immediately after Easter, following the introduction of the primula into the home as a floral decoration. Others referred the beginning of the dermatitis to the period immediately following a birthday anniversary, at which time the primula had been received as a gift. In the case described earlier, the patient had been presented with a flowering primula at Easter-time for five successive years, and had promptly each time developed a dermatitis, which became increasingly severe with each recurrence. Many exacerbations followed at irregular intervals for several months, and finally the entire process ceased (after the withered plant had been removed), to reappear at the following Easter. Only once was this sequence broken, owing to the presentation of a primula on the patient's birthday and the consequent development of the dermatitis during her stay at a sanatorium, where she had gone to recuperate after several months of suffering from what was regarded as a "nervous eczema."

In another instance the dermatitis made its appearance regularly for three years on Easter Sunday afternoon, had then persisted for weeks, was considered a "gouty eczema" and was each time cured by a stay at a German health resort.

In many instances the history of regularity or periodicity of attacks or exacerbations provides the clue for determining the cause of an otherwise unexplainable dermatitis, and probably nowhere more so than in the primula dermatitis. This is well shown in the history of several cases which I have observed. One patient repeatedly developed the dermatitis shortly after every return to her own home after a period of time spent in visiting friends or traveling; her return after even a few days of absence was followed by the outbreak of a dermatitis, her first care always having been the trimming of her plants, including the primula. In another instance a dermatitis of only moderate degree and extent appeared on every successive Sunday and subsided by Thursday or Friday of the same week. This sequence is explained by the regularity with which the primula was trimmed every Friday.

The eruption is most often found on the hands, forearms, and face, including the ears, and in all of the cases observed by me these were the only parts of the body affected. I have been informed of the case of a florist in whom the erythematous-vesicular inflammation extended to the shoulders, with marked swelling of both arms.

It appears that the inflammatory reaction remains limited to those parts which come directly into contact with the plant or to which the irritating principle is transferred. Thus, in one of my cases the ears were intensely affected because of transference from the hands owing to the patient's habit of pulling at the lobes of the ears. In the case of a housemaid the fingers and wrists were the only parts affected, owing to their contact with the primulas contained in a window-box when raising or lowering the window shades. A unique case

has been reported by Kirk⁶ in which an intense swelling of the oral and pharyngeal mucous membrane resulted from chewing a leaf of the primula.

This limitation of the eruption is in marked contrast to that seen in ivy poisoning, in which areas of the skin remote from the points of original contact are frequently and severely affected.

The first symptoms usually observed are intense burning and itching, without visible change in the skin, which, however, soon responds with an erythematous blush and some swelling. I have not observed a papular eruption, though papulo-vesicles may develop later. Rarely the reaction is entirely of an urticarial nature; that is, an acute edema with serous exudate, sufficient at times to prevent closing of the hand. Small vesicles, closely grouped, develop early, and I have been impressed with the frequency with which the vesicles are angular in outline, as contrasted with the rounded vesicular lesions of eczema. The lateral surfaces of the fingers, dorsum of the hands, and the chin and cheeks show the vesicular eruption most often. In the cases I have seen the palms have always remained normal.

The subsequent course of the eruption may be acute, with the formation of blebs and considerable edema, or more subacute with rapid drying of the vesicles and scaling. The duration of a single attack may be as short as four to five days or may be extended to two weeks before recovery is complete. Acute exacerbations due to renewed exposure may prolong the affection indefinitely, and result in the production of a chronic, infiltrative type of dermatitis, lasting perhaps for several months. Fortunately, however, the discovery of the cause of the dermatitis, or the death of the plant, and consequent absence of further opportunity for renewed infection, allows recovery to take place. In this connection it is interesting to note that although under favorable conditions the primula blooms about every six weeks, it usually, after two or three months of household care, loses its vitality and is discarded, at which time the dermatitis also terminates.

The sleeplessness, anorexia, and general nervous irritability observed in some cases can be fully accounted for by the intense burning and itching which is a prominent feature of even mild types of the dermatitis. Fever, chills, joint pains, and other evidences of constitutional disturbance have never been observed by me, though transient slight rises in temperature are mentioned by Nestler.

The variation in the degree of reaction exhibited by different persons to the irritating principle contained in the primula, and the apparent immunity of others, is suggestive of the existence of an idiosyncrasy. The study of a large number of cases, however, shows in many a constantly increasing susceptibility, so that even the slightest contact with the toxic agent will eventually result in the production of an intense dermatitis. Others, apparently entirely immune, will later, after repeated exposure, develop an intense reaction just as do those who exhibit an "idiosyncrasy" primarily. Among florists and their assistants this gradual change from immunity to susceptibility is not uncommon, and I have had occasion to observe several such instances. The personal experience of Nestler,⁷ detailed in his admirable monograph, in which his immunity was finally succeeded by an intense susceptibility, provides the experimental proof for the assertion that probably no one is entirely immune.

This extremely sensitized state of the skin, causing marked reaction to even minimal amounts of the irritant, is highly suggestive of the development of an anaphylactic condition, and is comparable to the phenomena resulting after repeated introduction of essentially non-toxic sera of a different species. This view is supported by the analogous condition of increased susceptibility of the skin after repeated exposure to the dust of satinwood, with the development of a dermatitis, observed in satinwood workers by Wechselsmann.³ He also calls attention to the fact that in animal experiments parts of the phenomena of anaphylaxis occur in the skin: intense itching, hyperalgesia and spasm of the arrectores pilorum.

Individuals differ in their rapidity of response to the action of the irritant within wide limits. It has been experimentally determined (Nestler) that the dermatitis may not develop until fourteen days after contact with the plant, although the usual period is from a few hours to two or three days. After repeated attacks the response is more prompt, usually within a few hours following contact. The occasionally prolonged incubation period, and the fact that the primula dermatitis does not always appear after the first contact with the poison, but may require repeated exposures for its development, largely increase the difficulty of diagnosis.

BOTANICAL AND CHEMICAL CHARACTERS

Of the many species of the primrose family only four (*Primula obconica*, *P. sinensis*, *P. cortusoides* and *P. sieboldii*) are known to be capable of producing a dermatitis, according to Nestler's researches, and of these the *Primula obconica* is most virulent and the most frequent offender. *Primula sinensis*, the Chinese primrose, though capable of exciting an intense dermatitis, is less often in question, and will merely be mentioned here.

The *Primula obconica* was introduced into Europe from China in 1883 and several years later began to be extensively cultivated by American florists. The flowers are arranged in a whorl, borne on a slender, cylindrical, hairy stalk, and are pale lilac, pink or purplish in color. The leaves are soft, large, radical, ovate-cordate, hairy, and spring from the root. The leaf-stalk, flower-stalk and midrib are abundantly provided with coarse, easily visible hairs and innumerable fine hairs, the latter being found also on the calyx and corolla. The hairs are all glandular and exude a greenish-yellow material which forms brownish-yellow masses that are readily detached by the slightest touch.

The secretion, which contains the crystals, is readily soluble in alcohol, ether, chloroform, hydrochloric acid and sulphuric acid, but is insoluble in water (Nestler). Under the microscope the formation of monoclinic crystals can be observed.

Practically all who have written on the subject of primula dermatitis ascribe its production to an assumed mechanical irritation by the hairs of the plant, because these are pointed and said to be easily detached. My study of the subject, however, led to the conclusion that inasmuch as the hairs are not readily detached and are too soft and supple to act as mechanical irritants, the source of the dermatitis must be sought for in the secretion of the plant. The leaves have a faint aromatic odor, distinct from the perfume of the flower, and this suggests the presence of a volatile oil with toxic properties.

Experiments with the secretion applied to my skin were negative except for a temporary tingling and prickling sensation, but produced a mild reaction in a patient who had formerly experienced the dermatitis. Similar results followed the application of the dried residue left after washing a number of leaves with ether. At this time I became acquainted with the experimental work of Nestler on this subject, as detailed in his exhaustive monograph, and have been able to confirm a number of his observations. He was the first to demonstrate the existence of needle-shaped crystals and large and small rhombic prisms in the secretion exuding from and covering the glandular hairs of the leaves. By direct experiment on himself and others he was able to produce a dermatitis with crystals obtained by sublimation of the residue left after flooding the leaves with ether; he thus provides the evidence that in these crystals resides the irritating principle of the primula. Although I have repeatedly found extremely minute needle-like crystals and small rhombic forms in the ether washings and in the untreated secretion of fresh leaves, the larger rhombic formations, as described by Nestler, have thus far escaped my observation. The chemical composition of the toxic principle, however, still awaits solution. Nestler showed further that not alone the fresh leaves, but also the thoroughly dried leaves, contain the irritating substance, which explains the infection occurring particularly in housewives, who, when trimming the primula, pick off the dried leaves.

The dermatitis may develop without direct contact with the plant, owing to transference of the secretion to various objects and then to the skin. Nestler was infected several times through the medium of gloves which had been worn while experimenting with the secretion of the plant. In the case of a highly susceptible florist's assistant observed by me the dermatitis developed after handling the paper in which primulas had been packed during shipment. This mode of infection, however, is probably very infrequent, as is also the transmission of infective material from one person to another, as briefly mentioned by Nestler, and direct contact with the plant will be found to have occurred in the great majority of cases.

TREATMENT

Consequently the removal of the primula and thorough cleansing with alcohol of objects which have been in contact with the plant are required to prevent a recurrence of the dermatitis. Alcohol, ether and chloroform are solvents of the secretion, and when applied immediately after contact with the plant have been found by Nestler to prevent the development of the reaction. From my own experience I can confirm this observation, and also Nestler's statement, based on experiment, that alcohol applied immediately on the appearance of the dermatitis, in case there has been a short incubation period, results in a modified and mild course of the inflammation.

In other respects treatment is to be conducted according to the usual principles followed in cases of acute dermatitis. The intense itching and burning are usually promptly relieved on the application of calamin lotion or zinc gelatin, and under a bland ointment the inflammation rapidly subsides and the skin returns to normal after slight desquamation. This rapid subsidence of an apparently intense inflammatory process of eczematous character, under indifferent treatment, ought to be sufficient to arouse suspicion of the artificial nature

A NEW INCISION FOR EPITHELIOMA OF UPPER AND LOWER LIPS OF SAME SIDE

WALTER S. SUTTON, A.M., M.D.

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KANSAS CITY, MO.

The incision described is an adaptation of the principles of the well-known Dowd operation to the removal of a growth involving both upper and lower lips. This readily appears from the similarly-lettered sketches presented herewith.

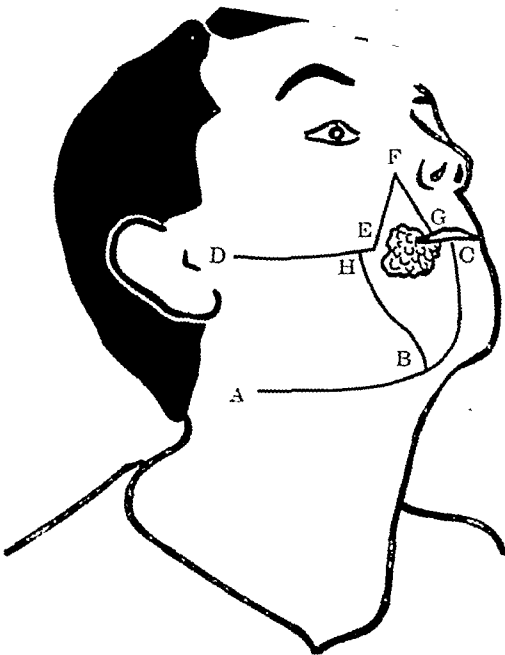


Fig. 1.—Suggested incision for epithelioma involving both lips.

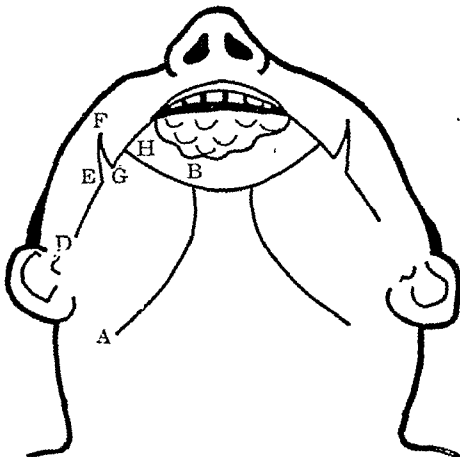


Fig. 2.—The Dowd incision (after Binnie).

In the Dowd operation, as in its predecessor, the Malgaigne, it is usually necessary to excise a triangle (E F G Fig. 2), from the upper half of the cheek in order that the tension necessary to bring the lower flaps together may not produce a wrinkle in this location. In the absence of involvement of the upper lip this triangle may be taken out at any convenient point. If, however, there is involvement of the upper lip this triangle may be made of such size and placed in such a location as to

remove it (E F G Fig. 1). In case of a growth involving the entire lower lip and both ends of the upper lip, the procedure could be made bilateral and would then resemble the Dowd operation even more closely.

In practice the incision A B is first made and the removal of submaxillary lymph and salivary glands completed. The facial artery is preserved though its ligation is not necessarily followed by necrosis of the flap. The other incisions are then marked on the skin and rapidly completed, the outer portion of the line D H going down only to the deep fascia over the masseter. The flap A B H D is then separated from the jaw-bone as far back as required to permit the necessary stretching, care being taken not to injure the facial artery in this step. The point E is then brought over to point G and point H to point C.

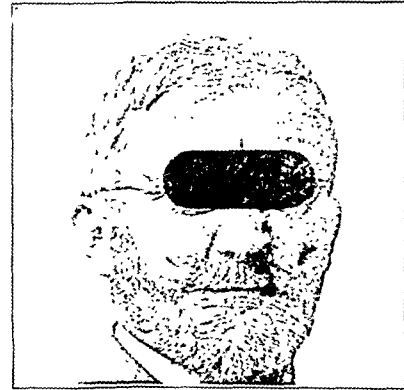


Fig. 3.—Result following author's incision twenty-two days after operation.

In case of deficiency of mucosa on the part of the new-made portion of either lip, much can be done toward covering the raw area by simply drawing over the edge of the mucosa from the sound side without dissection and tacking it to the raw surface by means of one or two plain gut sutures.

Figure 3 is from a photograph of a patient in which the growth and incision lines correspond closely to conditions shown in Figure 1. The photograph was made on the twenty-second day after operation.

Argyle Building.

A CLAMP FOR ISOLATING A PORTION OF THE LUMEN OF A BLOOD-VESSEL WITHOUT STOPPING THE CIRCULATION THROUGH THE VESSEL*

G. N. STEWART, M.D.
CLEVELAND, O.

For various purposes in physiology and also in surgery it may be desirable to clamp off temporarily a longitudinal portion at one side of a blood-vessel while the circulation is allowed to go on through the remainder of the lumen. A field can thus be provided in which the operator can work at his leisure without fear of injuring the organs supplied or drained by the vessel by clamping it off altogether. I have devised a clamp by which this can be conveniently done. One form of it is shown in the accompanying illustrations.

The essential points are the following:

* From the H. K. Cushing Laboratory of Experimental Medicine, Western Reserve University.

1. The long, narrow grip of the jaws in the longitudinal direction. The grip is narrow in order that as little as possible of the lumen may be encroached on. The length of the occluded portion will, of course, vary with the purpose for which the clamp is used.

2. The extension of the grip at each end at right angles to the length of the vessel. This is necessary to complete the occlusion of the isolated segment. The length of the rectangular portions must be proportioned to the diameter of the vessel worked with. If too long, they project too far beyond the vessel, and thus make the field of operation less accessible for some purposes.

3. The hollow behind the gripping edge in which the open portion of the vessel is safely lodged and protected from pressure. The size of this hollow must be great enough to comfortably accommodate the non-occluded part of the vessel.

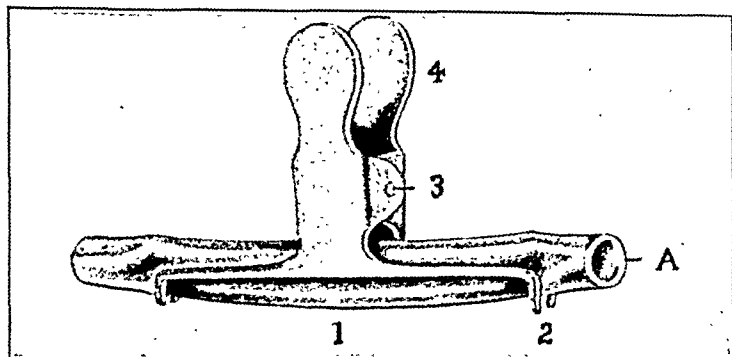
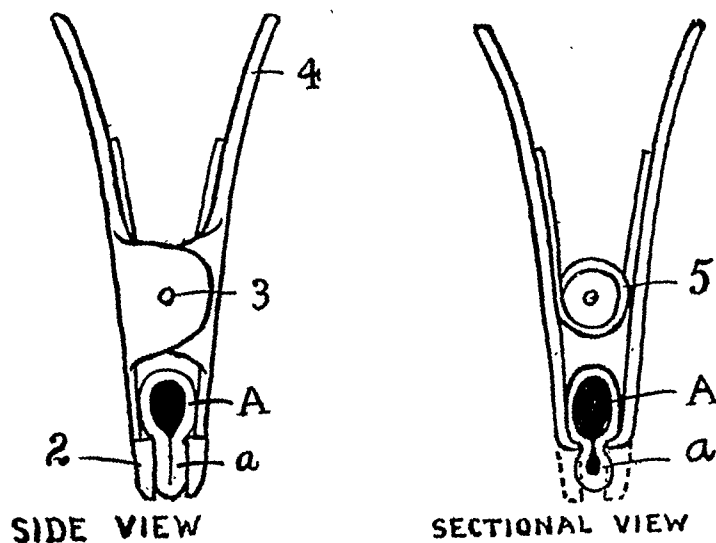


Fig. 1.—Front view of clamp in position on vessel; (1) middle of the isolated portion of the vessel; (2) the rectangular projections of the jaws; (3) the axis on which the jaws rotate; (4) grip for the fingers; A, open lumen of blood-vessel beyond the clamp.



Figs. 2 and 3.—Side view (to the left) of clamp (2, 3 and 4 as in Figure 1; A, open portion of lumen of vessel in the hollow of the clamp; a, occluded portion of lumen); and sectional view to the right) at position of (1) in Figure 1; (5, section of the spring through which the pressure of the clamp is obtained; a, isolated portion of the lumen; A, open portion).

In the clamp shown in the figures the pressure is obtained from a small-sized spring behind the axis. It can also be made with a screw for graduating the pressure. A pair of ordinary "bull-dog" forceps fitted with jaws of the shape described is another form which may be useful for some purposes.

Such clamps might be employed to arrest hemorrhage from a wound in a large vessel which could not be clamped completely without detriment, and during the suturing of the wound; possibly in the treatment of sacculated aneurism in some situations; in performing lateral anastomosis of blood-vessels in cases where it is undesirable to completely occlude one or both of the vessels

for the time required in the operation; in performing lateral implantation of one vessel on to another which must not be totally occluded; in inserting a cannula laterally into a vessel without stopping the circulation when there is no convenient branch of the vessel which might be used, or where it is disadvantageous to occlude such a branch; in narrowing experimentally the lumen of a vessel without temporarily occluding it, especially when a diminution of the lumen by a definite amount is desired, etc.

My colleague, Dr. George W. Crile, has told me that it might be useful to have a clamp which embodied the

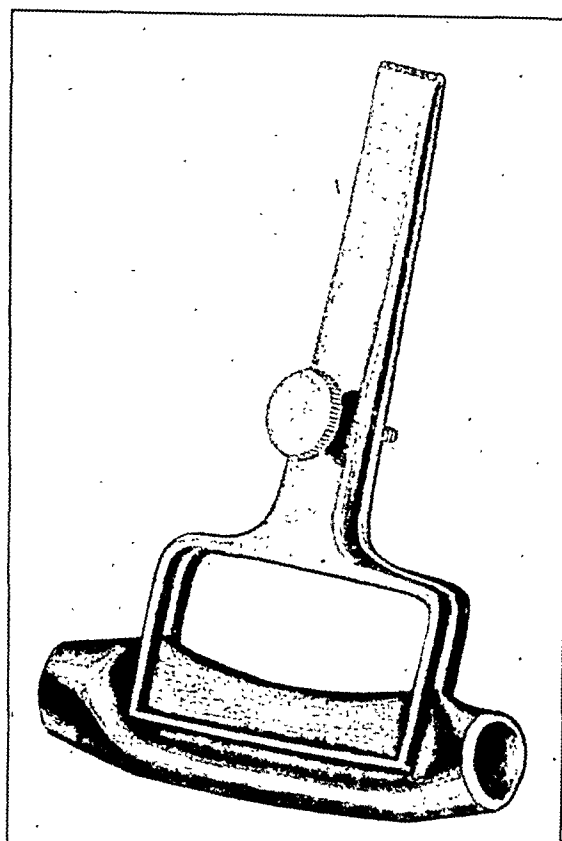


Fig. 4.—Clamp to be applied to the wounded side of the vessel only.

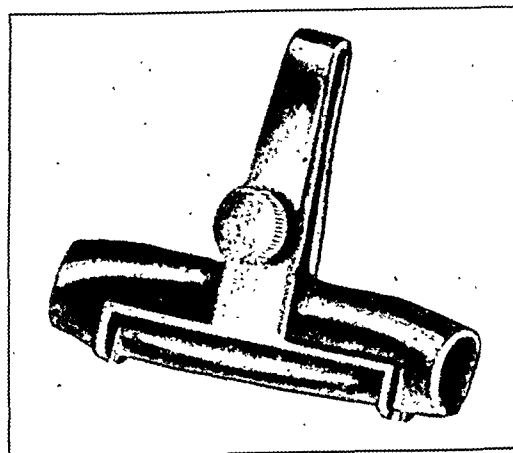


Fig. 5.—First form of clamp as made with a screw for graduating the pressure.

principle of that just described but which could be applied over a wounded vessel without dissecting out the vessel too freely. I have therefore devised the form shown in Figure 4. This is intended to be applied to the wounded side of the vessel only. It is supposed that the surgeon could suture the wound through the open portion of the clamp while the circulation goes on through the part of the lumen not included in the

clamp. This clamp may possibly be used also for some of the other physiologic or surgical purposes for which the first form was intended. Figure 5 shows the first form of clamp as made with a screw for graduating the pressure. The jaws, of course, may be covered with thin rubber.

East Ninth Street and St. Clair Avenue.

FEMORAL HERNIA OF FALLOPIAN TUBE WITHOUT OVARY

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CHICAGO

The intention in presenting this case is not to emphasize its rarity, however unusual the condition may be, but to call attention to the possibility of the occurrence and the necessity of its recognition at time of operation.

The literature on the subject has been covered by Dr. Frank T. Andrews¹ and Dr. Paul Morf² of Chicago up to the year 1907. It is therefore unnecessary at this time, to pursue that phase of the subject to any greater extent than to refer those interested to the articles mentioned. These writers—in their reports—present cases of their own to add to the list of the few on record.

Since the publication of Dr. Andrews' last paper on the subject in 1907, very few cases are to be found; in fact, I have been unable to discover any of the femoral and only three of the inguinal variety. In these cases the tube was not found alone within the sac but with some other abdominal or pelvic viscus.

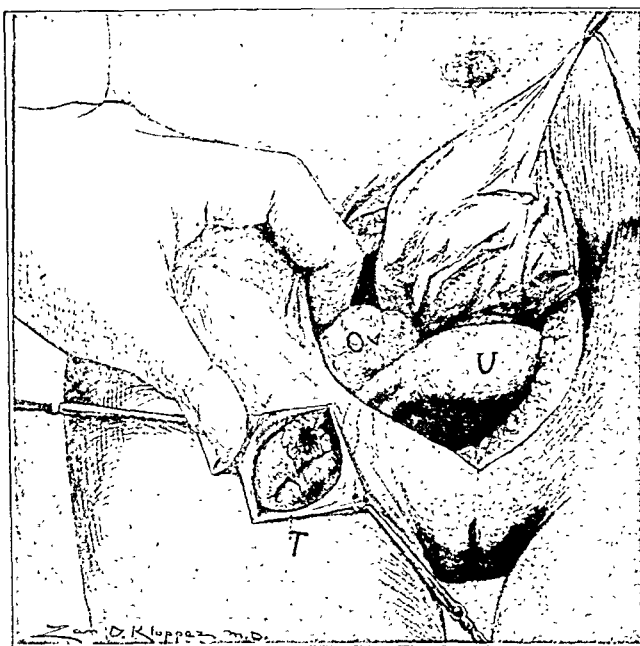
History.—The case which I wish to present, referred to me by Dr. J. F. Williams, is that of a woman 33 years old, married, whose occupation was that of a housewife. The family history is negative, having no bearing whatever on the difficulty in question. The menses began at 14, and had always been regular and without any especial pain. The patient had never noticed the occurrence of any vaginal discharge. She had been married at 30 and never had been pregnant. There was no history of injuries of enough importance to have made an impression. With the exception of an attack of typhoid fever ten years previously and the negative history of gestation and trauma, the personal history was devoid of interest.

Present Illness.—The patient complained of a small tumor in the region of Scarpa's triangle of the right thigh. This tumor had existed for about fifteen years as a small lump that varied slightly in size and consistency from time to time. It had caused no inconvenience, however, and in consequence had never been examined. Within the last twelve months the size of this tumor had increased gradually until at the time of this examination, it had reached that of an egg. During the last few days, pain had developed in the right pelvis and abdomen and the tumor itself had become tender.

Examination.—The routine examination of the patient showed her to be of large frame, with a very wide pelvis; her condition to be unusually good, except that her expression betrayed anxiety. Pulse was 110; temperature, 100 F. The tumor under consideration was situated in the right thigh, below Poupart's ligament, but a little higher than the usual location for a femoral hernia. It was tense, slightly discolored, and gave the sensation of slight fluctuation. Absolutely no impulse was obtained on hard coughing and no change in size on pressure in whatever position the leg was placed.

Bimanual examination of the pelvis revealed nothing definite because tenderness interfered with the examination. An indefinite mass could be palpated in the right pelvis. No diagnosis was made further than that of a femoral hernia, perhaps strangulated, or the possibility of an enlarged inflamed lymphatic gland.

Operation.—A transverse incision curved upward above Poupart's ligament through subcutaneous tissue to the tumor, revealed a hernial sac extending up under Poupart's ligament. The sac was thick, tense and filled with fluid. When incised, a sanguineous colored serum escaped. The sac contained, besides the fluid, what was shortly identified as about one-third of the Fallopian tube. The tube showed evidence of considerable congestion, was swollen to about the size of the patient's thumb, purplish in color and besides was adherent in several places to the peritoneum, especially around the neck of the sac. The fimbria were matted together, red, and adherent to the sac. Reduction was impossible without incising Gimbernat's ligament and even had this course been followed it would not have been warranted on account of the pathologic condition of the tube. The abdomen was incised in the median line, the general peritoneal cavity protected and the pelvis explored. The uterus was found drawn forward, twisted somewhat to the right with the cornu of that side



Femoral hernia of Fallopian tube without ovary. This illustration is reproduced from a cadaver specimen, prepared at the Chicago Polyclinic Laboratory, to show conditions found in the case.

pointing toward the femoral canal. The right ovary was discovered plastered up against the femoral ring, cystic, and about the size of an orange. The right tube was stretched, thinned and disappeared into the femoral canal. The left tube and ovary were practically normal. The indications were in favor of excision of the right tube and resection of the corresponding ovary. The tube was removed by incising elliptically into the cornu to remove mucous membrane canal in wall of uterus, suturing the uterine incision and with the same suture coapting the layers of the broad ligament outward to the femoral ring. The portion of the broad ligament which followed the tube into the sac was ligated separately; the tubal adhesions freed from the sac and the tube lifted out of the sac through the femoral incision. The femoral ring was found small and thus, by removing the tube backwards, was left small. The sac was then freed, ligated, resected and through abdominal incision, purse-stringed. The ovary was resected in the usual manner and the appendix removed because of concretions. The abdominal incision was closed and the thigh incision drained for thirty-six hours, with rubber tissue strip.

1. Andrews, Frank T.: Hernia of the Tube without the Ovary. *THE JOURNAL A. M. A.*, Nov. 25, 1905, p. 1625; Hernia of Ovary and Tube, *THE JOURNAL A. M. A.*, Nov. 24, 1906, p. 1907.

2. Morf, Paul F.: Hernia of Fallopian Tube with Hernia of Ovary, *Ann. Surg.*, March, 1910.

The patient made an uneventful recovery, leaving hospital in ten days.

When a condition as unusual as the above is encountered during an operation, the procedure must be determined by following the general principles of operative surgery, relieving the condition by removing the pathologic tissue, repairing defects and guarding against infection.

Routine methods for operating in such a case cannot be fixed, as here we have encountered the unexpected in the usually simple operation for femoral hernia.

The steps taken in this operation were determined on because of the following considerations:

1. The size of the ring under Poupart's ligament. Had this hernia been of the inguinal variety the ring could have been enlarged and a second abdominal incision would have been unnecessary.

In this case the right horn of the uterus could not have been resected through the femoral ring.

2. The fact that the tube was adherent to the sac in several places, especially around its neck; that the portion within the sac was swollen, dark red, but except at points of adhesions the peritoneum was free from blisters, erosion or anything to indicate much inflammation. This condition of strangulation was certainly mechanical rather than inflammatory and the evidences of inflammation were not of recent date.

3. The advisability of knowing the condition of the pelvic organs, especially on account of the pelvic tenderness and the mass palpable through the vagina. The median incision seems to have been justified by the finding of the large cystic ovary.

4. The superior results obtained in the removal of the tube by excising at the horn of the uterus and suturing layers of broad ligament, rather than ligating *en masse* as would have been necessary had the tube been resected in location of hernia.

5. The positive indication for the removal of the tube on account of its very evident pathologic condition.

The most plausible of several etiologic possibilities as to the causation of this condition seems to be that this was probably originally a small intestinal or omental hernia, that the abdominal contents were reducible and at some time, when reduced, were replaced by the tube. The tube was at the time, or, later, became slightly inflamed, forming adhesions between itself and the sac, causing it to become irreducible. The strangulation occurred because of the interference with the tubal return circulation, by possibly Gimbernat's ligament, with the subsequent congestion, discoloration, swelling and transudation of serum.

There may also be an explanation based on J. H. Russell's theory³ from the congenital standpoint but in this case, aside from the natural tendency to a hernia in this location, especially in the case of a woman with a particularly wide pelvis, the history containing nothing to indicate trauma of any nature, nothing here adds any conformation to the embryologic hypothesis.

If congenital it must be an accidental defect rather than a consecutive embryologic development, like that for example in the male, where the testicle descends down into the scrotum and an embryologic sac, which normally is obliterated, remains within the sheath of the spermatic cord.

The fact that this case is one in which the tube was found alone within the sac, seems to have been an accident. This should have been a case with the tube and

ovary both involved within the hernia. The ovary certainly had a tendency to follow the tube, as shown by the location in which it was found. The small hernial ring or the cystic enlargement of the ovary, or perhaps both, were responsible for its retention within the abdomen.

161 State Street.

INTRADURAL TUMOR OF THE SPINAL CORD WITH OPERATION *

EDWARD E. MAYER, M.D., AND OTTO C. GAUB, M.D.
PITTSBURG, PA.

REPORT OF CASE AND ANALYSIS BY DR. MAYER

The diagnosis of tumors of the spinal cord is no longer difficult, nor is their operability in a majority of cases a debatable question. Indeed the large number of patients successfully operated on has fully justified the optimism of Victor Horsley as expressed by him three decades ago.



Fig. 1.—Patient with intradural tumor of the spinal cord, front view, showing areas of anesthesia, hypesthesia, and normal sensation; from photograph made four months after operation.

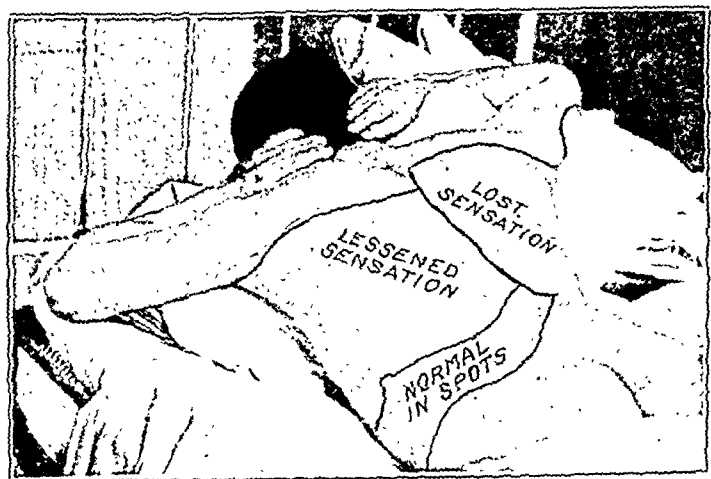


Fig. 2.—Same patient, back view, showing areas of lessened sensation, lost sensation, and normal sensation in spots; from photograph made four months after operation.

Since then in every country many have contributed to our knowledge of tumors of the spinal cord—the recent books of Malaise, Bruns, Oppenheim and Schlesinger covering well the entire subject—so that we shall try to avoid being too discursive.

3. Russell, R. Hamilton: Congenital Origin of Hernia, *International Med. Jour.*, Australia, Jan. 20, 1906.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

CASE REPORT

Clinical History.—July 12, 1909. Family and previous history are not noteworthy. The patient, M. T., had not had syphilis, gonorrhea, or any infectious disease, but probably did overexert himself and subject himself to cold and privation. A cloth manufacturer in Russia, he was reduced to poverty, and for some years after coming to America peddled, carrying a fifty-pound grip. For the last four years he had been a store-keeper in a small way.

Present Illness.—In 1904 he felt a slight pain between his shoulder-blades. This was continuous for about one month and was especially noticeable when he threw his head back or turned his neck; when recumbent he could move head and neck freely without any pain manifesting itself. This pain grew worse, was intermittent, and would shoot down the inner side of his arms, and at one time disappeared for over a year. In October, 1908, on the advice of his physician, he went to Mount Clemens to try to get relief there from this pain. At this time he could not stoop to tie his shoe laces on account of the pain in his neck. His spine was at no time stiff, however, nor was there any lateral deviation or torticollis. When he would sit for any length of time, a numb feeling would steal up his legs which he would not notice when he was standing or walking. Later, a similar sensation developed around his right elbow. Pain between his shoulder blades not only persisted, but now

also in the ulnar side. He had no erection and no ejaculation for six months, nor had he any longer control of either bladder or bowel. When he wished to cough or take a deep breath he felt a constriction or sense of heaviness across his chest. The patient slept soundly except when awakened by the spasms. There was no disturbance of hearing, smell, taste or of speech. There was absolute paralysis of lower limbs, with pronounced clonus, and incontinence of urine and feces.

Right Hand and Forearm: Weakened power of supination; no power for extension of hand; inability to flex fingers completely. He could flex second phalanges about thirty degrees. There was inability to abduct thumb; slight abduction and adduction of fingers on radial side; absent on ulnar side. Interosseal and intrinsic hand muscles were slightly atrophied. Hand grasp was zero.

Left Hand and Forearm: Extension and flexion weakened but neither so much as on right side; abduction of fingers weakened; hand grasp zero.

Reflexes: Mendel-Bechterew phenomenon present; knee-jerks both much increased; Babinski present in both legs; Oppenheim present in both legs; Gordon present in both legs; cremasteric reflex, faint; abdominal reflexes, absent; triceps and ulnar reflexes, diminished; scapular reflex, absent. On extreme lateral movements of eyeballs there were slight nystagmoid movements. Right pupil slightly larger than left.

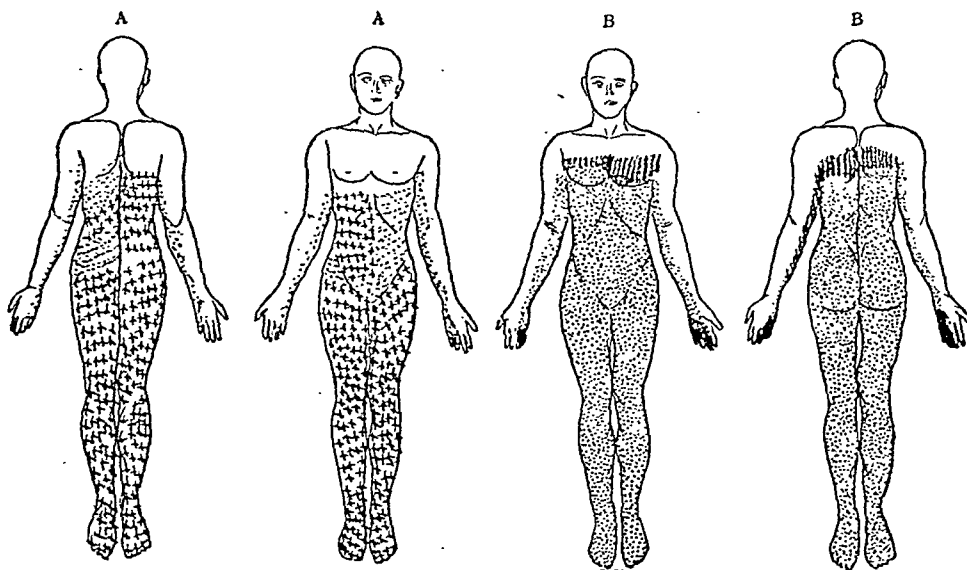


Fig. 3.—Diagrams of sensation areas in same patient before operation. In A A, area covered with crosses indicates loss of temperature sense to both heat and cold; stippled area indicates deficient temperature sense, either delayed or not always correctly interpreted. In B B, stippled portion indicates the region in which both pain and tactile senses are lost; portion shaded with lines indicates additional area with tactile anesthesia; solid shaded portion in hands represents lost muscle sensation.

would not stop when he was walking or when recumbent or with any position of his head. While at Mount Clemens, he took the baths and massage and believes his pains disappeared for a few weeks. However, he returned home very weak, and a little later, (November, 1908,) noticed a weakness in his right leg which could not be lifted as easily as before. This grew worse from day to day. About a month later, his right arm began to feel heavy and his hand-grasp was weaker than formerly. This weakness increased to paralysis. About January, 1909, his left leg and arm became involved similarly. He came to see me on January 11, was told of the seriousness of his condition and the probabilities of an operation, and advised to go immediately to the hospital. He chose to be guided by other opinions, however, and presented himself again only on July 12, six months later.

Examination.—At this date the patient was absolutely helpless, having been bedridden from the beginning of March. He complained very much of cramp in his calf muscles, accompanied by involuntary flexion of his legs, with sharp pains extending up his arms and back, to his neck. He had absolutely no power of voluntary motion in his lower limbs. When his lower limbs contracted involuntarily, his fingers drew up

Normal pupillary reactions. Equal palpebral fissures. Fundi normal. Normal neck and shoulder movements. No enlargements of vertebrae. Entire spinal column freely movable. Percussion, which was taken with posterior surface of the flexed index-finger elicited slight tenderness over sixth cervical vertebra. Auscultation with percussion (tonal percussion) over vertebrae negative.

Sensation: Patient complained of a cold pain in right leg. In areas of lost sensibility, patient felt at some places a delayed sense of touch or pain without being able to orient it; that is, to tell where he had felt it. This was most noticeable in the lumbar flanks and inguinal region. Lost tactile sensation extended one segment higher than lost pain sensation, as high as the second rib in front and the first dorsal vertebra behind. Temperature sense was disturbed about equally in areas shown by chart, but especially on the right side of the body. Inner side of arms anesthetic, analgesic and thermaesthetic; bathyanesthesia and pallanesthesia of both lower limbs.

Wassermann negative; von Pirquet negative; blood examination negative; radiograph negative.

Diagnosis.—Tumor involving seventh and eighth cervical and first thoracic spinal nerves, the sensory changes pointing especially to the eighth cervical and first thoracic, and the muscle changes to the sixth and seventh roots as well. Operation was not arranged for until September on account of taking our vacation.

This history on analysis read so clearly that a diagnosis of spinal cord tumor was easily made, its location, structure and extent only requiring a further study. It is needless to emphasize the importance of establishing these points in discussing the question of a spinal tumor and its operability, which carry with them a consideration of the segments of cord or of spinal roots involved. I am omitting all special points connected with tumors of the vertebrae themselves, or of intramedullary tumors, except as they enter into the question of the diagnosis of intravertebral tumors, extradural or intradural, which are primarily the operable types, and whose clinical histories are practically similar. It is to the intradural variety that this case belongs.

SYMPTOMS AND DIAGNOSIS OF INTRADURAL TUMORS

Symptoms of intradural tumors, following somewhat the arrangement of Bruns may be grouped as follows:

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 1. Unilateral.
 2. Bilateral.
 - c. Symptoms due to growth of tumor into cord.
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 - a. Erosion.
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In other words, depending on the origin, size, and manner of growth, intradural tumors will slowly but progressively evoke symptoms of unilateral, later bilateral, pain and hyperesthesia, radicular in type, spasms and then paralysis, perhaps of a Brown-Séquard type at first (unilateral compression of cord), but generally becoming rapidly a paraplegia (total compression) with atrophy.

With Mr. T. no objective early history was obtainable, but even his meager description brings out a very important fact; that is, the fairly constant pain between his shoulder-blades was made worse on movement. Though there are exceptions, whenever an algia of such a location is intensified by movement of the head or by stooping, coughing, etc., a strong suspicion of spinal root irritation should be instantly created. Indeed, if at that time, it had been found on examination that the algia extended segmentally, and not according to a peripheral innervation, with the absence of any lateral deviation of the spine or stiffness, a probable diagnosis of spinal cord tumor at that time, even before the onset of any paresis atrophy or segmentary anesthesia, would, I believe, have been justifiable. The necessity of examining for objective sensory changes twice a month or oftener, is also indicated, in order to detect the oncoming of this significant diagnostic point. The occurrence of edema in the innervation zone of the painful spinal root, to which Schlesinger and, lately, Pease and Bailey call attention, is a valuable help when present. With doubtful pains, corsets and braces or extension are advocated, though Oppenheim calls attention to their making the symptoms rapidly worse. The question of an eccentric projection of pain (Shultze) should never be forgotten, and all possible diseases of the thoracic and abdominal organs excluded. An extension upward of a spinal growth would

of course, involve new segments and roots and evoke symptoms higher up the cord. An extension downward need not cause any new symptoms; never, if there has been a complete conductive paralysis. A bilateral pain is more often found in vertebral tumors than in tumors of the roots and spinal cord, and if in addition shortening of the spinal column is noticed, carcinoma of the vertebrae is most probable. Of course, the incomplete intercostal neuralgias which are not of Head's type, found in hysteria and the presence of trophic muscular disturbances accompanying simple chronic neuritis, must always be excluded.

The fact that three nerve roots must be affected before distinct sensory and motor paralysis occurs emphasizes in my opinion the importance of a careful investigation of these prodromic symptoms of spinal root irritation, their intensity, constancy and stubbornness to medical treatment, their aggravation on movement and explosive respiratory acts, the segmental character of the pain and tenderness or hypesthesia present and possibly localized tenderness or increased pain on pressure over vertebrae. A change in the vertebral percussion note manifestly could occur only late in the growth of the tumor (except of the vertebral tumors), and if it did occur early, should awaken suspicion of a serous meningitis more than of tumor. The change, however, in the percussion note is so slight that it can never be of much value as a diagnostic factor. Palpation and percussion should always be done slightly to each side of the spinous processes and in palpation I have found that pressure upward helps to get a more reliable result. Percussion on one side and listening with the stethoscope on the other side of the spinal column is a good method.

A striking point in our patient's history is the length of his period of pain. Though the course of spinal cord tumors is a slow one, and of the intradural type the slowest (an average of twenty-six months according to the most reliable statistics), with Mr. T. we have a history of four to five years of radicular pains, indicating possibly an irritative state before the appearance of, or without an increase in the size of, the tumor. The question, moreover, of a possible primary radicular disease preceding the growth of the tumor, must be considered. Such a protracted course is, however, not exceptional as the histories given by Horsley, Bruns and Oppenheim show, though in our patient it persisted longer than in the patients reported by them before compression symptoms developed. I could hardly reconcile this slow course with the pathologic finding of an endothelioma.

We have learned from experience that motor symptoms without sensory alterations, even though they increase progressively, cannot be accepted as conclusive evidence of the presence of a tumor of the spinal cord, and that whenever there is reasonable certainty of its presence, the place for operation depends on the localization of the upper pole of the growth. Charting on the skin the areas which show sensory alterations is without question necessary in every case of spinal cord disease, and especially in suspected tumor cases. Further realizing that every muscle and skin area is innervated by from two to four segments, we must locate the seat of cord injury at least one segment higher than the paralysis of motion and sensation indicates. I have, for instance, at present in my service at the South Side Hospital a probable case of dorsal-cord tumor in which the motor paralysis is of the second to the fourth lumbar segments and where the upper pole of the hypesthesia is at the

level of the tenth dorsal vertebra. Operation will be justified, however, a little higher, as it is reasonably sure that the seat of trouble is higher. The pains and spasms of this patient are particularly prominent and call attention to the importance of such symptoms in localizing the upper pole of the growth. Indeed, where this so-called *anesthesia dolorosa*, or the so-called *paraplegia dolorosa* of Cruvelhier, is present, its value for localization exceeds every other symptom. Though therefore in this latter patient we would from her paralytic symptoms view her paralysis as lumbar, the hyperesthesia and spasms point to a higher innervation and must be considered in the operation to be performed on her.* Another interesting symptom of this patient is the intermittent presence of Babinski's sign, present one day, absent the next.

Unless the surgeon is also a neurologist, he should always have the seat of injury or of disease thoroughly located, if possible, before operation. I was, for instance, recently asked to examine a patient because he did not recover motion and sensation after a laminectomy; in him I found segmental symptoms several segments higher than the operative site, though I could not assert, not having examined him previously to the operation, that there had not been an ascending myelitis since the operation. How much better, however, had it been if this patient had been thoroughly examined before operation!

To return to our patient who is the subject of this paper: The sensory charts revealed an involvement of the last cervical and upper dorsal segments. We assumed the upper pole of the growth to be a little higher, because of the total anesthesia and paralysis, and because of the local tenderness ignored the dorsal cord entirely, and the operation, skilfully performed by Dr. Gaub, revealed a tumor at the sixth cervical segment. I wish to also add that Drs. McKennan, Diller, Henniger and Silver saw this patient and confirmed our diagnosis.

One cannot too strongly remember that to have paralysis, two or three spinal roots or segments must be injured, and that with an area of intense pain the spinal root above, or perhaps two spinal roots, are probably affected. Individual variations of course occur, so that whenever we have hyperesthesia lying segmentarily over an anesthetic zone, it clinches localization. In segmental localization the upper pole of the lesion is always higher than the symptoms indicate and often higher than the area laid bare by the surgeon. That the innervation zones are given by some authorities a segment higher or lower than generally accepted can be practically ignored, because of the rarity of such an occurrence, coupled with the fact that we must, on account of the trisegmental innervation spoken of before, and of the topographic relations of cord, roots and vertebrae, allow for an error of at least one segment. I am not forgetting that dissociated anesthesia as a temporary symptom has been occasionally reported even in extradural tumor, but it is an extremely rare occurrence.

Given a positive segmental diagnosis in any progressive disease where the pains are severe and there is no hope for any other kind of benefit, operation, in spinal cases, is indicated (except where gliosis symptoms are present), even where the diagnosis is not clear, and subacute myelitis, localized serous meningitis or pachymeningitis have not been absolutely excluded.

Postoperative History.—The damage to the cord in our case was too extensive to warrant absolute recovery, though Mr. T. is better and his life has been saved. Loss of sensation gradually decreased to a hypesthesia on the right side and his spastic phenomena measurably decreased in intensity, but not entirely. Both motion and sensation gradually improved in his left arm and hand, but not in his right, and he can now turn in bed, partially sit up and move his toes, all of which was impossible for him to do last summer. The last sensory chart made of him shows that his thermic sense has practically become normal on his right side; that the upper level of the hypesthesia is not as high as was the anesthesia (right side), but practically the same on the left side. His right hand remains totally paralyzed. Notes made by my assistant, Dr. MacIntire, this spring read:

"Right Arm: Partial abduction of wrist. No abduction. Palmaris longus causes flexion of wrist. Slight contraction of flexor sublimis digitorum seen in movements of index finger only. Spade-like hand. Thenar and hypothenar eminences atrophied. Pronation and supination normal. No lateral movements of fingers or of thumb. Left Arm and Hand: All muscles normal."

The pictures taken by Dr. MacIntire show the present sensory involvement. A last report from our patient informs us that he now sits up ten hours daily and sleeps soundly all night, his obstipation being what most troubles him at present.

REPORT OF OPERATION BY DR. GAUB

The patient was placed in the prone position, with the head slightly lower than the shoulders, which eliminated the normal curvature of the posterior surface of the neck.

A straight incision was made over the spinous processes of the vertebrae, beginning at the fourth and ending at the first dorsal spinous process. The soft tissues were removed from the spinous processes and lamina of the fifth, sixth and seventh cervical vertebrae.

The arches of the sixth and seventh cervical vertebrae were removed by means of Macewen's bone-cutting forceps. Nothing abnormal was found. The dura presented a normal appearance and pulsated.

At the suggestion of Dr. Mayer the arch of the fifth cervical vertebra was removed. The dura was opened in the median line, revealing the cord, whose contour showed no gross alteration.

The exposed cord, at its lower level, felt resistant on palpation. By means of an aneurism needle the cord was gently drawn to the left, which exposed a mass the size of a Malaga grape, bluish white in color, situated on the right anterolateral surface of the cord, apparently traversed on its posterior surface by the posterior root, on account of the dislocation of the cord, and on blunt dissection it seemed to surround the anterior root of the sixth cervical nerve.

During the process of removal the tumor ruptured, but with care it was removed, possibly with the exception of a minute portion of the growth, which may have remained in the sixth intervertebral foramina.

The tumor on microscopic examination, made by Dr. Proecher, pathologist to the Allegheny General Hospital, proved to be an endothelioma. The dura was closed with interrupted catgut sutures, the soft structures, as far as possible, coaptated by means of a continuous catgut suture, and the intermuscular space drained with rubber tissue.

The patient was placed in bed on his side. There was moderate shock. Within a few hours, the temperature rose to 102.6 F. and continued a degree lower, with slight remissions, for the next seven days. There was moderate leakage of cerebrospinal fluid. After the removal of the drain, the patient suffered a chill and a rise in temperature to 103.2 F.

The temperature dropped to normal within thirty-six hours. It continued at 99 F. for a week, when there occurred a second chill, moderate in severity, and a rise in temperature to 101 F. This quickly subsided and the temperature remained around 99 F., until four days later there was another chill and the temperature arose to 102.6 F., which again quickly receded.

Two more chills, mild in character, and an increase in temperature occurred at intervals of four days, following which the temperature remained normal.

* Since this was written, an operation on this patient was performed and no tumor but a localized meningitis was found.

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of course, involve new segments and roots and evoke symptoms higher up the cord. An extension downward need not cause any new symptoms; never, if there has been a complete conductive paralysis. A bilateral pain is more often found in vertebral tumors than in tumors of the roots and spinal cord, and if in addition shortening of the spinal column is noticed, carcinoma of the vertebrae is most probable. Of course, the incomplete intercostal neuralgias which are not of Head's type, found in hysteria and the presence of trophic muscular disturbances accompanying simple chronic neuritis, must always be excluded.

The fact that three nerve roots must be affected before distinct sensory and motor paralysis occurs emphasizes in my opinion the importance of a careful investigation of these prodromic symptoms of spinal root irritation, their intensity, constancy and stubbornness to medical treatment, their aggravation on movement and explosive respiratory acts, the segmental character of the pain and tenderness or hypesthesia present and possibly localized tenderness or increased pain on pressure over vertebrae. A change in the vertebral percussion note manifestly could occur only late in the growth of the tumor (except of the vertebral tumors), and if it did occur early, should awaken suspicion of a serous meningitis more than of tumor. The change, however, in the percussion note is so slight that it can never be of much value as a diagnostic factor. Palpation and percussion should always be done slightly to each side of the spinous processes and in palpation I have found that pressure upward helps to get a more reliable result. Percussion on one side and listening with the stethoscope on the other side of the spinal column is a good method.

A striking point in our patient's history is the length of his period of pain. Though the course of spinal cord tumors is a slow one, and of the intradural type the slowest (an average of twenty-six months according to the most reliable statistics), with Mr. T. we have a history of four to five years of radicular pains, indicating possibly an irritative state before the appearance of, or without an increase in the size of, the tumor. The question, moreover, of a possible primary radicular disease preceding the growth of the tumor, must be considered. Such a protracted course is, however, not exceptional as the histories given by Horsley, Bruns and Oppenheim show, though in our patient it persisted longer than in the patients reported by them before compression symptoms developed. I could hardly reconcile this slow course with the pathologic finding of an endothelioma.

We have learned from experience that motor symptoms without sensory alterations, even though they increase progressively, cannot be accepted as conclusive evidence of the presence of a tumor of the spinal cord, and that whenever there is reasonable certainty of its presence, the place for operation depends on the localization of the upper pole of the growth. Charting on the skin the areas which show sensory alterations is without question necessary in every case of spinal cord disease, and especially in suspected tumor cases. Further realizing that every muscle and skin area is innervated by from two to four segments, we must locate the seat of cord injury at least one segment higher than the paralysis of motion and sensation indicates. I have, for instance, at present in my service at the South Side Hospital a probable case of dorsal-cord tumor in which the motor paralysis is of the second to the fourth lumbar segments and where the upper pole of the hypesthesia is at the

UNIVERSITY MEDICAL SCHOOLS *

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NEW YORK

• In recent years there has been a very decided improvement in medical education in the United States. It is not hard to understand why the foreigner lifts his eyebrow in surprise when he is told that most of our medical schools a generation or two ago required but two terms of four or five months each and that there was just beginning to be a demand for a little more complete course and better facilities. There were many medical schools with these low standards turning out graduates every year with the degree of Doctor of Medicine, which constituted a license to practice in every state in the Union, for there were no laws regulating the practice of medicine. As for preliminary requirements, the less said the better. If a man could write his name—and, indeed, he did not have to write it very plainly—he found it easy to matriculate in a medical school and to be graduated at the end of two scant terms. He might come from the mines or from the farm, or from before the mast, or from the smithy, or the carpenter shop; he need know nothing of chemistry, or physics, or botany, or English, or, above all, English grammar, to be admitted to what was called a professional school and graduated when he had served his time. Practically no one was “plucked.” The desire of the faculty for numbers of students forbade that in most cases. The two terms in medicine were not even successive courses. The second-year student listened to the same lectures that he might have heard the preceding year.

We all know the reason now for this extremely low standard of medical education. Proprietary medical schools made it their one business in life to make just as much out of medical education as possible and the professors, or sometimes the dean, pocketed the fees—I came near saying the spoils—every year, and robbed medical education of whatever possibilities it might have for the real training of young men in the science and art and practice of medicine. Perhaps the most interesting feature of this maintenance of extremely low standards in medical education is the fact that, in spite of it, men—at least many of them—succeeded in obtaining a good foundation in medicine and then, by personal work afterward, came to be excellent practitioners of medicine. Professor Welch said not long since:

One can decry the system of those days, the inadequate preliminary requirements—the short courses, the dominance of the didactic lecture, the meager appliances for demonstrative and practical instruction, but the results were better than the system. Our teachers were men of fine character devoted to their duties; they inspired us with enthusiasm, interest in our studies and hard work, and they imparted to us sound traditions of our profession.

Some of these very admirable results our medical schools with their longer terms do not achieve at the present time.

Nothing that I know is a better testimony to American enterprise and power of overcoming the difficulties of an almost impossible situation than the life-stories of some of the men who came from these utterly inadequate schools. If with the maimed training and incomplete education given a generation ago American medicine not only succeeded in maintaining the dignity of

the profession to a noteworthy degree, but also raised up many men who made distinct contributions to world medicine, what may we not do now that our medical education is gradually being lifted up out of the slough of despond in which it was, and the preliminary education for medical students set at a standard where real work can be looked for of thoroughly scientific character from the very beginning of the medical course?

Is it any wonder, then, that those of us who have the best interests of American medicine at heart are watching with deep interest the movement that is now reforming medical education in this country? The one hope of medical education is and always has been organic connection with the university. Real university medical schools—that is, medical schools as the genuine post-graduate departments of universities with the fine training that they give—have opened our eyes to what is needed in medical education in this country. Some of the old-time medical schools here in the United States had been connected by name with universities; but this connection was more apparent than real, and the medical faculty ruled absolutely in its own department, throttled medical education, and divided the income of the college among themselves, devoting as little as possible to equipment, to laboratories, to all that was needed for medical education.

Now has come the epoch of university medical schools in this country—I came near saying America; but we must not forget that the Spanish-American countries having adopted their educational systems from their mother Latin country always maintained the organic connection of the medical schools with their universities, and as a consequence a good preliminary education has always been required there. At least four years in the medical school were required even in the sixteenth and seventeenth centuries, and five and six years during the nineteenth century in all these Spanish-American countries. I have thought, then, that this story of medical education in connection with universities and genuine university work would be interesting to the graduates of that great western university whose work in medicine is acknowledged to be up to the best standards of university professional work, and whose organic connection with a great university assures not only a continuance, but the future development of medical education here along lines that shall place this in the very near future among the productive medical schools of the world.

The first university medical school that well deserves that name is the one that came into existence in connection with the University of Alexandria. I have been at some pains, because it is so delightfully amusing, to point out how the University of Alexandria resembles our modern universities in most particulars. It was founded by a great conqueror who had gone out and made the world his oyster, and, having extracted from it the pearl of supreme dominance, sighed for more worlds to conquer, founded a great city that was to be the capital of his empire, and looked forward to endowing a great institution of learning in that capital that was to attract students from all over the world. When he died prematurely the Ptolemies carried out his wishes. Money was no object at Alexandria; they put up magnificent buildings, founded a great library, bought a lot of first editions of books in the shape of original manuscripts, stole the archives of Athens, used Alexander's collection made for Aristotle as the foundation of what we would call a museum, paid professors better salaries than they received anywhere else, and housed them in

* Address to the graduates of St. Louis University Medical and Dental Schools, May 31, 1910.

twenty years. Before that their courses were brief and unworthy and no preliminary education was required.

The universities of Spanish America from the very beginning required three years of preliminary training in the university before medicine could be taken up, and then four years of medical study. These four years became five and six years in certain countries, and at no time during the nineteenth century did the medical education of Spanish America sink to the low level unfortunately reached in the United States. The lesson of it is clear. When medical education is seriously undertaken as a university department all is well. When it is not, results are disastrous.

887 Longwood Avenue.

THE PREVENTION OF INFANT MORTALITY FROM AN EDUCATIONAL STANDPOINT*

L. T. ROYSTER, M.D.,
NORFOLK, VA.

In no line of research has scientific investigation achieved more striking results than in medicine. Nor has the broad-mindedness of the physician been content with the mere alleviation of human suffering, however praiseworthy this may be, but that altruism which has characterized the profession is impelling it to

with ever-widening success for the complete eradication of preventable disease and suffering and the developing of a race noted for health, vigor and strength. Preeminent among such efforts stand the investigations of the pediatricists, who hold an undisputed position among the pioneers in the study of prevention, and I may safely say that enough is known to-day to reduce materially the present fearful rate of infant mortality if the knowledge were properly applied, and yet with all that has been discovered and the knowledge which has been acquired, the actual number of deaths during infancy has not been materially decreased, and the question naturally arises, why? The answer is simple; because a knowledge of the means of preventing infant mortality has not been sufficiently disseminated among the people. If this is true and I am thoroughly convinced that it is true the question resolves itself into the best means of distributing such information as will aid in this campaign, to all people of all classes and conditions of life, showing them what are the causes of mortality, the results of bad management and how best to apply the knowledge of the means of prevention to the accomplishment of the desired end.

I propose, therefore, to discuss a few ways in which education may aid in a material reduction of the death-rate among infants and children. It seems to me to be entirely proper that we start with the profession itself in our campaign of education, for on us must rest the burden of at least interesting the public in the vast importance of this crusade and directing its mind in the right channel along which to work.

In the first place, the course in pediatrics in the majority of colleges is entirely inadequate and far from commensurate with the importance of the subject. Anatomy, practice of medicine, therapeutics, materia medica and other branches are well taught in the average medical college and even a certain number of actual deliveries in obstetrics are required for graduation; and, as is well known, surgery is given so much time both in

lecture and in attendance on clinics that one might well imagine that nine-tenths of all students who graduate are being prepared for a practice wholly devoted to this branch, whereas, in many colleges, if pediatrics is taught at all, it is treated as an unimportant side-branch of practice of medicine or obstetrics. It would appear, therefore, that the college authorities fail to realize the importance of the subject, which is important to the student because it is a very necessary part of his preparation for general practice into which the majority of the graduates of the medical schools fall, and important for its bearing on the life and health of the nation, for mortality among infants means not only depopulation but deprivation of many useful, if not wealth-producing citizens to the community; while morbidity—which cannot be separated from mortality in such a discussion as this—bears directly on the virility of the race. So in the beginning I must make a plea for better instruction in this branch of medicine during the college course.

One of the most serious matters for consideration is the awakening of the practicing physician to the vast importance of the proper handling of infants and children, for barring the three great factors, poverty, overcrowding and ignorance, all more or less economic in their nature, the careless or ignorant physician is perhaps the most difficult part of the problem to handle. Many doctors are either too ignorant or too lazy to attend properly to the needs of infants during the first year of life; consequently they turn these helpless creatures, especially the artificially fed ones, over to a nurse who may or may not know anything about their care, or what is worse, dismiss the case with the sole instruction to an ignorant mother to put the child on A's or B's patent food and to follow the manufacturer's circular; or else to employ the equally vicious alternative, condensed milk. Some one has aptly said that "the patent food is the boon of the lazy doctor, the bane of the suffering infant," and I know of no words which better describe the situation. Such men as these are either unwilling to admit that they do not know how to feed infants or they are afraid of losing a few dollars by referring the case to some one competent to take charge; and are comparable to the obstetrician who fails to instill the silver solution into the eyes of the new-born.

As I have stated, this class of physicians presents an exceedingly difficult phase of the problem and I am quite certain that there is only one way in which they can be reached and that is through their patients. The public must be taught wherein consists proper and improper handling of infants, what constitutes good feeding, the evils of improper feeding, and in a general way, what is right for the physician to do. When they understand these things, as they will in a remarkably short time, if properly instructed, they will then demand more careful and approved attention to their children on the part of the family physician, who will be compelled either to study approved methods for himself or to seek aid from those better informed on the subject. Likewise the people should be taught the true significance of the blindness resulting from the gonococcus and the means of its prevention, and when they fully realize its importance we can rely on them to see that the attending obstetrician or midwife uses the silver solution.

As we all know, the most important and far-reaching of the many causes of the condition under discussion is ignorance on the part of those having the intimate care of children during that most critical period of life—infancy. This, of course, usually means ignorance on the part of mothers; hence the key-note of the whole

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

situation is the education of the mother in the home. When taking histories it is not an uncommon occurrence for a mother to state that she has had seven or eight children and that she has raised only one or two, the rest dying in infancy. This, in the majority of instances, is the most striking commentary on the knowledge (or ignorance) of the mother. Nor is this to be wondered at. Many a woman becomes a wife and subsequently a mother without having had instruction in any of the many difficulties with which she is to be confronted, with the natural consequence that she is soon surrounded by a galaxy of sympathizing and self-opinionated neighbors who are pouring into her open ears a detailed account of miraculous cures effected by this or that remedy, which she receives and uses with an avidity born of desperation and bred of the ignorance of which she is the unfortunate heir. As the natural result of this the stricken mother has the misfortune to see her offspring wilt in her arms, where she invariably keeps it, until at last the physician may be called only in time in most cases to sign the death certificate. The influence of "grannies" is gradually passing, at least among the better classes of society, and yet their superstitions are still apparent in many of the so-called home remedies in common use. The fear of fresh air for the well, to say nothing of the sick infant (especially those sick with eruptive diseases) is still so prevalent as to make us involuntarily ask the question whether the value of fresh air has even begun to be appreciated by most people; while the methods of feeding and handling which are generally practiced are so obviously indicative of ignorance that we might well imagine we are dealing with mothers just from the African jungle rather than in the heart of American civilization.

I am glad to see that the custom of early weaning from the mother's breast is rapidly going out of fashion; but the importance of maternal feeding as a factor in the prevention of infant mortality cannot be impressed too strongly on the popular mind. The economic value of breast-feeding should be emphasized, and will appeal strongly to those of moderate means. About nine out of every ten mothers who come to my clinic (mostly negroes) know of only one substitute for mothers' milk, and that is condensed milk; and when told of the value of fresh cows' milk at once inform us that they know of no one who has just one cow from which to secure the child's food. So deeply does this idea of the one cow's milk for the child seem to be implanted in the minds of the poorer people that it is with great difficulty they can be persuaded to get their milk from a good dairy or the milk laboratory. These ideas and superstitions are in many instances so well established in the popular mind that when we endeavor to explain the correct method of procedure, we often meet with such a degree of suspicion toward the physician that it would appear the profession is held in light esteem and that its opinions are regarded with less confidence than those of the old women or neighbors alluded to before. Hence the confidence of the people must be secured to the physician before much can be accomplished.

It is well known what remarkable success has met the efforts of those interested in the prevention of tuberculosis in instructing the public concerning the cause, means of prevention and cure of this disease through the medium of a general educational campaign; why then cannot as much be done through the same means in the equally important field of the prevention of infant mortality? As has been said before, the key-note of the situation is the education of the mother in the home.

How then may we best reach the mother? A great deal can be done through popular lectures and magazine articles and the few such articles as have appeared in some of the prominent magazines have already borne fruit, as I have had opportunity to witness quite recently; and such articles have greater weight than the private talk of the family physician, or else confirm what he has often said and prove the correctness of his statements because it has been "seen in print."

Probably the greater proportion of mothers, however, never see these magazines or hear a popular lecture and the valuable information contained in them is lost to the most important part of the population. This class, therefore, is to be reached through other channels and I know of no better way than through the well-conducted dispensary and milk depot. The instruction and advice given in the dispensary can be followed up in the home by a competent visiting nurse, without which any dispensary or milk depot is seriously handicapped, if not a failure, so far as popular education is concerned. Whatever the method, therefore, whether by magazine article, pamphlet, dispensary or the individual instruction by the visiting nurse in the home, the object should always be to gain the confidence of the people so that they will follow the advice and instruction of the physician or nurse rather than of the self-constituted and ignorant adviser or the patent-medicine circular.

The havoc wrought by long working hours for the nursing mother and the woman about to become a mother are too well known to physicians to be more than mentioned here, but not until the public generally becomes aware of this injury to women and its fearful results to their offspring in mortality and morbidity, shall we ever secure a proper regulation of labor laws. I believe, firmly, that when public sentiment is sufficiently aroused, the people will demand of both legislator and manufacturer regulation in this matter and a respect for life and health as opposed to the value of the dollar. Human life and health, however, can be shown to be a valuable asset of pecuniary value and, when this is done an impetus will be given the struggle for regulation of working hours which cannot be secured in any other way, for we all know what a powerful influence the monetary standard of valuation possesses. From this point of view, I have strong hope in the aid we shall eventually receive from the insurance companies, especially those of an industrial nature; for when these companies once fully appreciate the relation between the health of the pregnant woman and her unborn offspring and the insurance risk of the child or man, when insured at a later date, I am confident that we shall then have to aid us both the moral and the financial influence of these great powers.

The signs of the times already point to bettered conditions now or in the very near future, and the press, from which we are to hope for the greatest assistance in this matter, is alert to the importance of the question as is shown by a comment in the *Chicago Record-Herald*, in reporting a recent legal decision bearing on this matter. The comment reads:

What we know as men, we cannot profess to be ignorant of as judges. . . . As weakly and sickly women cannot be the mothers of vigorous children, it is of the greatest importance to the public that the state take such measures as may be necessary to protect its women from the consequences induced by long, continuous manual labor in those occupations which tend to break them down physically. It would therefore seem obvious that legislation, which limits the number of hours which women shall be permitted to work to ten hours in a single day, in such employments as are carried on in mechanical

establishments, factories, and laundries, would tend to preserve the health of women and insure the production of vigorous offspring by them and would directly conduce to the health, morals and general welfare of the public, and that such legislation would fall clearly within the police power of the state.

There is another field of usefulness in this educational effort which has been touched on but sparsely in the literature at my command, but which appeals to me most strongly since, being in touch with primary education, I see its possibilities, and this is the public school. Hygiene is taught in the school in a general way, hygiene of the home and public hygiene, but the hygiene of early life, that which bears directly on the life and health of the infant is neglected. The girls of our schools to-day are not only the mothers of a short generation hence, but many are the "little mothers" of the poor at present. Why should they not be taught the care of the child and the general principles of feeding? The only reason is that its importance has not been sufficiently recognized. Some effort has been made in this direction in the playgrounds under the teaching of the caretakers there employed; but this instruction has not been taken directly into the schools. We all know the powerful influence of whatever is taught in the schools and the rapidity with which the pupil carries the lesson into the home and how reflexly the parent is influenced by the child's knowledge. Why should such an opportunity as is here afforded to spread information regarding the care of the infant be allowed to pass? This is especially important among the foreign element which grasps with such remarkable avidity anything which looks like improvement and suggests the acquirement of American civilization.

Finally, we physicians must realize that on us lies the burden of inaugurating this campaign and should institute a beginning as soon as possible. What more influential body of men is there in this country to-day than the American Medical Association? Why should we not make the greatest effort in this direction and be recognized as the leaders in the fight?

Taylor Building.

ABSTRACT OF DISCUSSION

DR. S. W. KELLEY, Cleveland, Ohio: Dr. Royster spoke of the short time for pediatrics in the college course, and of its being doubled up with some other branch of teaching in many colleges, being taught by the teacher of obstetrics or gynecology or toxicology or what not. These conditions, among others, have been taken up for consideration by the Association of American Teachers of the Diseases of Children and, after some studies of the subject two years ago a report was adopted at the session held in Atlantic City in June, 1909. This report declared, among other things, that "every medical college should have a chair of pediatrics. It should be a full professorship, quite independent; i. e., not subordinate to any other chair." The association declared also in favor of devoting as much time to pediatrics as to any other practical branch; that 10 per cent. of the third and fourth years, or not less than 190 hours, should be the minimum.

The Council on Medical Education of the American Medical Association has also taken some action recommending an increased allowance of time to 180 hours.

In the Association of American Medical Colleges, the Committee on Curriculum for the Clinical Years, at the meeting at Baltimore last March, advanced the time devoted to pediatrics from 100 hours to 150 hours. This has not yet gone into effect, but the report will be acted on next year and whatever is adopted will not merely be recommended but will become the law of the association as the minimum requirement. This time allowance, of course, does not come up to the ideal, but is certainly a very encouraging advance.

THE JOURNAL A. M. A. gives an account of the meeting of the College Association in brief abstract; it may interest you to hear that the report goes on to say that "the allowance for pediatrics is intended to include instruction in the exanthemata. In many other ways medicine and pediatrics overlap. Useless repetition can only be avoided by a proper understanding between the teachers of these two subjects, and a certain elasticity should be allowed a school for the purpose of assigning time to one subject or the other according to where the borderland subjects can best be taught. In the same way pediatrics and surgery touch and overlap. In one subject or the other the surgery peculiar to children should receive attention. Valuable suggestions in relation to the teaching of pediatrics will be given in an appendix to this report."

PUBLIC HEALTH ORGANIZATION IN NEBRASKA*

D. T. QUIGLEY, M.D.,
NORTH PLATTE, NEB.

The purpose of this paper is to report the organization of the public health officers of the State of Nebraska, to give the plan of the organization and to recommend the plan to other states where such a movement has not yet been made, rather than to recount the work already accomplished.

On June 8, 1909, in response to a call sent out, a large number of the city and county physicians of the state met in Omaha and organized what is now the Nebraska State Health Association. For several weeks before the meeting, and before the call was sent out, interest was aroused by the following letter, which was published in newspapers throughout the state:

HEALTH OFFICERS SHOULD ORGANIZE

North Platte, Neb.

To the Editor:—In line with the present rapidly developing sentiment in favor of the idea of preventing disease instead of attacking it after it has developed, and the spread of life-saving medical intelligence, I want to bring before the public the necessity of organization of the public health officers and the need of public support of such an organization after it has been effected. Much good would result if the public health officers of the state were organized and would hold regular meetings, where the ways and means for preserving public health might be discussed, improvements and advances noted, and the force of the organized body brought to bear on the enforcement of such regulation as might be necessary. City and county health officers have been inclined to be passive and very little work of an active and aggressive nature has been done; but, in view of the fact that an enormous amount of the diseases that now afflicts the people of our state could be absolutely prevented, it seems reasonable to suppose that one of the first steps to secure more nearly ideal health conditions would be perfection of such an organization as I have cited.

D. T. QUIGLEY, City Physician.

This was followed up by a letter to every city and county physician in the state as follows:

CALL FOR STATE MEETING OF THE PUBLIC HEALTH OFFICERS OF NEBRASKA

To all city and county physicians and other public health officers of the state of Nebraska:

Dear Doctor:—This circular letter is sent to every public health officer in the state for the purpose of effecting a state organization. The need of such an organization is apparent

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

when we realize that there is much to be gained in enforcing health regulations, if the city or county physician is backed up by a compact and well organized state association. This, however, is of minor importance compared with the benefits that will come to each community and the state by the wide dissemination of knowledge on preventive medicine that will result. The dominant note in all medicine to-day is prevention. There is much that is new in this field. Most of us can teach others something; we can all learn, and we shall all be better physicians and better health officers, if we get together and mix our experience and our learning. Nebraska, as a state, ranks first in the intelligence of her people; let us see that she ranks first in the intelligence of public health officers by making a good, strong association that will be a pattern for other states and do untold good by furthering the work of protecting our people from disease and death. We want to have this meeting as early as possible so as to get after the hot weather diseases, flies, etc., and that we may report what has been done at the Section on Hygiene of the American Medical Association at the Atlantic City meeting, June 8. The date set for this meeting, therefore, is June 7 and 8; the place, the Rome Hotel, Omaha. Return the enclosed postal, at once, stating whether or not you will be present. Get in as a charter member if possible. Charge your expense for the trip to your city or county. Very few will refuse to pay, if the benefit to the community from your presence at the meeting is explained to them.

DR. D. T. QUIGLEY, North Platte, Neb.

At this first meeting the subjects of tuberculosis, medical inspection of schools and the carrying of disease by insects, flies, etc., were taken up and fully discussed. As all the leading papers in the state had reporters at the meeting, the intelligence in regard to these diseases that was spread broadcast throughout the state amounted to a great deal, and health officers, even in districts not represented at the meeting, found it easier to enforce their regulations in regard to preventive measures. At the second meeting, which was held in Lincoln, a large number of persons who were not public health officers having become interested, the by-laws were so amended as to take in all interested outsiders as associated members, the only restriction being that they were not allowed to vote on any question involving the enforcement of any health regulations or rules. These associate members are very valuable in keeping up interest in health matters in their respective localities, and, in an association in which the active members hold office by political appointment usually only for one year, it seemed wise to make such a provision, if only to take care of the older members. The new health officer, coming in, is usually enthusiastic enough to seek membership, while the old one, going out, has learned to love the work well enough so that he will stay and give his colleagues the benefit of his experience. It will be seen that the possibilities for the growth of such an association are great.

The plan of the association is to spread knowledge of the prevention of disease in every way possible—by newspapers, lectures, etc. We expect to have a lecturer on public health at every *chautauqua* in the state this summer. The plan also includes the use of the influence of the association toward the passage of laws directed to the betterment of the public health, such as providing for a state lecturer on tuberculosis and venereal disease, the prevention of the marriage of the diseased, the idiotic and the insane, the prevention of the spread of disease by railroads, providing for medical inspection of schools, providing for quarterly bulletins to be issued by the state board of health and sent to every tax-payer in the state giving seasonable information on the prevention of disease, etc.

It will be seen that there is much to be done, and much can be done by an association like this in every state. I addressed the governors' conservation congress in March on the need for this kind of legislation and was very glad to see that the conservation of human life stirred up more interest than any other topic taken up by the assembly. All the recommendations made were incorporated into the resolutions adopted by the meeting. An association of this kind in every state giving its endorsement to such measures as Senator Owen's bill would help much toward the passage of favorable medical legislation.

THE PERMANENT ELIMINATION OF YELLOW FEVER*

J. H. WHITE, M.D.
NEW ORLEANS

Where the means for combating any disease is made known, it is little less than criminal to let such agencies fall into disuse. The American Commission in Cuba placed the necessary knowledge directly at our disposal in 1900, and we have evolved the correct practice since that time to such extent that we no longer fear epidemic yellow fever, but there still remains a goodly share of the work to be done. Most of us have vaguely considered the question of total eradication—I among the rest—but no practical solution of all points presented itself to me until I recently had a talk with the one man who probably knows more of yellow fever than any other, and his remarks put me on the track of the final solution—to Dr. Carter, of our service, therefore, belongs entirely the credit for most that I shall say.

We find this disease in endemic and epidemic foci. Endemicity, to be maintained, demands:

(a) A sufficient birth rate to furnish a very steady, continuous supply of non-immunes (babies), and therefore demands for its habitat a city of considerable size, unless conditions are peculiar, as below.

(b) The supply of non-immunes may be existent in a smaller place through the presence of a constant influx of non-immunes from the back country. This is exactly the reverse of what has many times been stated, viz: that the Hinterland infected the coast town. This latter erroneous impression I think Carter was the first to contravene.

Now, if we accept these two as the necessary corollaries for endemicity, it is readily seen that once endemicity is destroyed, we can also destroy *pari passu* all chance of epidemic occurrence. It has been fully demonstrated at Habana, Santiago, Cienfuegos, Vera Cruz, Rio Janeiro, Colon, and Panama that epidemic centers can be eliminated.

We know that the remaining foci are Cartagena, Sabanilla, Baranquilla, Bahia, Manaus, Para, Pernambuco, Santos, Guayaquil, and possibly the capitals of British, Dutch, and French Guiana on the American continent, and one or two points at most on the Gulf of Guinea, in Africa.

The total population of all these places will not exceed 1,500,000, and I am fully justified in saying that 5 mills per diem per capita would cover the cost, even at American prices, of holding these places in sanitary control—which control continued for a space of three

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

years, at a total outlay of about \$10,000,000, would mean that yellow fever, which has been the scourge of commerce for 400 years, would be no more, and maritime quarantine, save for plague alone, would become an unpleasant memory.

Such work would require cooperation with us on the part of the Latin-American countries and Great Britain, and, if Cayenne and Parimaribo are foci, of France and Holland; but I do not doubt the feasibility of obtaining all necessary cooperation, save for one of the Latin countries, since all but that one are on the best of terms with us, and even that one might be persuaded, in time.

The whole program could be summed up briefly as follows:

(a) Each center under one man's control, and he given full power to make a steady, insistent, and minutely exact fight on all *Stegomyia* breeding places.

(b) No attempt made to handle the sick, and so rouse the ire of the individuals.

(c) Be most careful to make it plain that subordinates shall annoy no one, and then see that they do not annoy.

The officer should approach the question of human carriers of the disease, if at all, solely through friendly suggestion to local authority, after getting on intimate terms, and then only to discreet officials, for fear of arousing opposition to his own particular work, which, in the end, would be absolutely sure of success. Could this be done, the medical profession would have to its credit an achievement that would be worth in money to the western world each year all of its cost, and to humanity more than can be estimated.

I wish to reiterate that I claim no originality in the foregoing, it being simply deductions from the splendid work of Colonel Gorgas, observations during my own work and, as before stated, Carter's suggestion. The idea of presenting such a conclusion having grown out of a statement made by Colonel Kean at the Atlantic City session in 1909, that we should wipe out yellow fever in ten years.

EXPERIMENTAL POLIOMYELITIS IN MONKEYS

EIGHTH NOTE: FURTHER CONTRIBUTIONS TO THE SUBJECTS OF IMMUNIZATION AND SERUM THERAPY*

SIMON FLEXNER, M.D.

AND

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NEW YORK

In our seventh note¹ on experimental poliomyelitis we treated of some of the phenomena of active immunization and passive serum protection in respect to epidemic poliomyelitis, and in this connection we wish to record some additional observations of the same general import. It can now be accepted as established that human beings and monkeys who have passed through an attack of poliomyelitis have come to contain in their blood certain neutralizing principles for the virus of poliomyelitis; that these principles are readily demonstrable by animal tests for two or more years in human

beings, and that they probably persist for as great a period in monkeys. It has, moreover, been shown that monkeys which have recovered from an attack of poliomyelitis are highly refractory to reinoculation with the virus of poliomyelitis, and it is probable that the recovered human beings are similarly protected from reinfection. In both instances the attack has conferred a strong active immunity. But to have had and to have recovered from poliomyelitis is not the sole way in which an active immunity can be achieved, since it has been proved possible to immune monkeys actively by injecting into the subcutaneous tissue either the virus of full strength or one modified by chemical agents (for instance, glycerin).

ARTIFICIAL ACTIVE IMMUNIZATION

This mode of producing active immunity has not up to the present time been developed into a uniformly successful and safe method, since of the treated animals some do not develop a strong immunity and others develop paralysis as a result of the treatment.

The test of this active immunity thus far published consisted of the ability to resist a large intracerebral injection of the filtrate that in far smaller quantities produces paralysis in the control animals. The active immunity has been secured either from a single large subcutaneous injection of the crude or modified virus as represented by emulsions of the spinal cord taken from recently paralyzed monkeys, or by repeated injections of gradually increased amounts of the crude virus.

SERUM NEUTRALIZATION OF THE VIRUS

It has been shown that the blood-serum of human beings and monkeys that have recovered from an attack of poliomyelitis contains neutralizing principles for the virus of the disease, which principles are absent from normal serum. Moreover, it is safe to assume that these neutralizing substances are the indication and cause of the active immunity which is responsible for the refractory state of the animals to reinfection. Hence there should exist in the serum of the directly actively immunized animals, which have not been made to pass through an attack of poliomyelitis, similar neutralizing principles. When an active filtrate containing virus is mixed with the serum of actively immunized monkeys and incubated for a period at 37 C. it no longer sets up paralysis on being injected into the brain of normal monkeys.

In the previous neutralization experiments with monkey serum reported, the serum had been taken from animals in which, after recovery, reinforcement of the immunity had been attempted either purposely by subsequent injections of considerable quantities of active virus or had been circumstantially produced in the course of tests made to determine the existence of immunity to reinfection. We have since ascertained that without reinforcement the serum of monkeys that have recovered from the paralysis contains readily appreciable quantities of this principle. This experiment has established the fact that monkeys react precisely as human beings do in respect to the disease, since their serum as such after recovery possesses marked neutralizing power for the virus *in vitro*; and it indicates that the test would probably disclose the fact of an atypical attack of poliomyelitis such as is embraced in the so-called abortive type of the affection.²

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. The previous articles have appeared in THE JOURNAL A. M. A., Nov. 13, 1909, p. 639; Dec. 1, 1909, p. 1913; Dec. 18, 1909, p. 2095; Jan. 1, 1910, p. 45; April 2, 1910, p. 1140; May 28, 1910, p. 1780; and Jour. Exper. Med., xii, 227.

2. Netter and Levaditi have indeed determined that the blood of a patient who had suffered an abortive attack of poliomyelitis contained the neutralizing principle.

EXPERIMENTAL SERUM THERAPY WITH MONKEY SERUM

In the seventh note we pointed out that the serum derived from immune monkeys that had passed through an attack of poliomyelitis possessed therapeutic properties for the experimental disease. It was stated that if the quantity of virus injected into the brain was not in excess of a given dose the development of paralysis could, in some cases, be prevented by making several injections of the serum, by lumbar puncture, into the subarachnoid space, and that infection by way of the nasal mucosa could also and with greater certainty be prevented by the serum injections. We have also ascertained that the serum of directly immunized monkeys possesses similar therapeutic properties.

EXPERIMENTAL SERUM THERAPY WITH HUMAN SERUM

That human serum derived from children who have passed through an attack of poliomyelitis possesses neutralizing power for the virus of poliomyelitis has been stated already; it can now be stated that it possesses therapeutic value also. When the subarachnoid injections are begun twenty-four hours after the intracerebral inoculation of the virus, the development of paralysis can be entirely prevented in a certain number of the animals, while in another number the onset of paralysis is much delayed.

The period of incubation in the control animals ranged from seven to eleven days and in some of the treated animals that finally became paralyzed it was as great as twenty-six and twenty-seven days. The serum injection begun twenty-four hours after the inoculation, was carried out on three successive days, after which an interval of three days was allowed to pass, when three more daily injections were given. It seems probable that had the injections been resumed after another interval of rest the last vestige of the virus in the tissues would have been destroyed.

NEUTRALIZED VIRUS PRODUCES NO IMMUNITY

We have seen that actively immunized monkeys, the result of obvious disease and paralysis, or the product of gradual or abrupt accommodation to the virus, not only yield a serum that contains neutralizing properties for the virus, but are themselves highly refractory to reinfection with a highly potent virus. The fact has been repeatedly observed that failure to develop paralysis after an intracerebral inoculation of an active virus does not lead to any increase in resistance of the monkeys to subsequent infection by the same route. The animals which have once withstood an inoculation respond on another occasion as readily as the control animals. No explanation for this discrepancy has been found.

It is of interest, therefore, to learn that monkeys which have been protected from paralysis through the employment of mixtures of virus and immune serums, or as result of treatment by subarachnoid injections of immune serums, do not exhibit any unusual degree of resistance to subsequent intracerebral injections of active virus made at periods of several weeks to four or five months after the condition of the original experiments. Three important points are developed by this fact: that neutralized mixtures of virus and immune serum do not lead to any degree of active immunization; that the therapeutic action of the serum is associated with restraint of multiplication of the virus such as would be required to establish any grade of active immunity; and

that a simple passive immunity is either not produced by the serum injections, or is of brief duration or small amount.

ARTIFICIAL IMMUNE SERUM

We have continued our efforts to produce an immune serum in some of the lower animals that might possibly become the source of a therapeutic serum. This work is being actively pursued at present, but we wish to report on an indication in the direction of our search. It has been found that normal sheep serum possesses a definite although slight neutralizing power for the filtered virus, and that the injection of emulsions of the spinal cord and brain of recently paralyzed monkeys into the sheep augments this property of neutralization.

The serum treatment of poliomyelitis is at present in the experimental state, and how soon, or whether ever at all, it will be applicable to the spontaneous disease in human beings cannot be predicted.

Sixty-sixth Street and Avenue A.

NOTES ON THE TECHNIC OF TRANSFUSION
OF BLOOD

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Transfusion of blood has been brought into prominence in the last few years as an emergency life-saving measure. This operation has been developed by Carrel, Guthrie, Crile and others to such a point as to render its performance quite satisfactory in the hands of an average surgeon who has done enough experimental work on the lower animals to perfect his operative technic. Its advantages have been so well demonstrated by clinical use that its position among surgical procedures is assured. In two kinds of cases it is particularly appropriate. The class of cases exsanguinated to such an extent that even when the volume of blood is increased by salt solution life cannot be maintained, can be saved only by transfusion of blood. The other group consists of patients who have been so enfeebled by disease that they cannot stand the operation necessary to cure them. Here transfusion of blood increases the resistance of the patient and often enables him safely to undergo surgical procedures that otherwise would probably be fatal. The field may yet be widened, but the above two classes of cases already constitute a sufficiently broad field to render the operation one that should be frequently performed.

The similarity between the development of arterial suture and the evolution of intestinal suture is very striking. When intestinal surgery began to come to the front there was a host of mechanical devices, of which the Murphy button was the most prominent. As experience increased it was seen that, other things being equal, the simpler an apparatus was the more desirable it would be. Gradually it was found that everything that could be accomplished by a mechanical contrivance could be equally well done with a needle and thread. Consequently mechanical contrivances are now rarely used in intestinal surgery. In arterial suture, as in the transfusion of blood, there is likewise a host of devices, of which the cannula of Crile is the most prominent. After the technic of arterial suture develops the various rings, forceps and cannulas will probably be discarded, as was the case in intestinal surgery, and the needle and thread will be adopted. Arterial suture requires experimental

the eczema entirely disappeared. The medicaments and lotions tried to relieve this itching of the vulva were oils (bland and medicated), powders, ointments, witch hazel, phenol, zinc, lead, bicarbonate of soda solutions, menthol preparations, etc.

It is almost fair to assume that this woman, who is perfectly comfortable on the present diet and suffering no symptoms from the diabetes, will not die, under this management, from this disease. The story of this patient shows what can be done to make a patient with glycosuria not only comfortable but all but well.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1910," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(Continued from page 503)

DIASPIRIN.—Diaspirin is succinyl disalicylic acid, $\text{CO}(\text{O.C}_6\text{H}_4\text{COOH})\text{.CH}_2\text{.CH}_2\text{.CO}(\text{O.C}_6\text{H}_4\text{COOH})$.

Diaspirin is a salicylic acid derivative, produced by the interaction of the two carboxyl groups of succinic acid with the phenolic hydroxyls of two molecules of salicylic acid, with the elimination of 2 molecules of water, thus: $\text{COOH.CH}_2\text{.CH}_2\text{.COOH} + 2\text{HO.C}_6\text{H}_4\text{COOH} = \text{CO}(\text{O.C}_6\text{H}_4\text{COOH})\text{.CH}_2\text{.CH}_2\text{.CO}(\text{O.C}_6\text{H}_4\text{COOH}) + 2\text{H}_2\text{O}$.

It is prepared by the action of succinyl dichloride upon salicylic acid.

Diaspirin is an odorless and almost tasteless white crystalline powder, said to melt at about 178°C . (352.4°F .) (Specimens examined by the Council were found to melt at 168°C . Corr.) Soluble with difficulty in cold alcohol and glacial acetic acid; scarcely soluble in water. By heating with caustic alkalis it decomposes into succinate and salicylate. Diaspirin is a dibasic acid which reacts with bases, organic or inorganic, to form salts.

Diaspirin produces the effects of salicylates. The following special claims are made for it: That it passes unchanged through the stomach, producing no irritation, but is split into its constituents in the intestine; that it exerts a strong diaphoretic effect.

Actions and Uses.—The same as those for salicylic acid.

Dosage.—1 Gm. (15 grains) three or four times daily.

Manufactured by the Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld, Germany. (Farbenfabriken, of Elberfeld Co., New York). U. S. patent No. 874, 929. U. S. trademark applied for.

FERRATIN—Sodii Ferrialbuminas.—Sodium Ferrialbuminate.—Ferratin is the sodium salt of ferrialbuminic acid, containing iron in the ferric state in organic combination, equivalent to 6 per cent. metallic iron.

Sodium ferrialbuminate occurs naturally in the organs of mammals, especially in the liver. Ferratin is prepared from egg albumin and chemically pure iron salts in the presence of alkalis.

Ferratin is a light brown, tasteless powder, having a faint odor. It is soluble in weak alkaline aqueous solutions, from which solutions it is precipitated by hydrochloric acid. On dissolving 0.3 Gm. ferratin in 10 Cc. of water with the aid of a few drops of ammonia water, and then adding an equal volume of a 25 per cent. potassium carbonate solution, no precipitation occurs.

Actions and Uses.—See Organic Iron Compounds.

Dosage.—0.5 Gm. ($7\frac{1}{2}$ grains) three to four times daily.

Manufactured by C. F. Boehringer & Soehne, Waldhof, Mannheim, Germany. (Merck & Co., New York). U. S. patent No. 505986. U. S. trademark No. 24,228.

ARSENOFERRATIN—Sodii Arsenoferrialbuminas.—Sodium Arsenoferrialbuminate.—Arsenoferratin is an arsenic iron albumin compound, obtained by introducing the element arsenic into the molecule of ferrialbuminic acid. Arsenoferratin contains iron in the ferric state, in organic combination equivalent to 6 per cent. metallic iron and arsenic, equivalent to 0.06 per cent. elementary arsenic.

Arsenoferratin is a brown, almost odorless and tasteless powder. It is soluble in water and easily soluble in dilute alkaline solutions.

Actions and Uses.—Arsenoferratin has the pharmacologic action of organic compounds of iron and of arsenic.

Dosage.—0.5 Gm. ($7\frac{1}{2}$ grains) three to four times daily.

Manufactured by C. F. Boehringer & Soehne, Waldhof, Mannheim, Germany. (Merck & Co., New York). U. S. trademark No. 24,228.

Arsenoferratin Tablets.—Each tablet contains arsenoferratin 0.25 Gm. (4 grains).

Arsenoferratin Liquor.—Liquor Ferratini Arsenati.—Arsenoferratin is a 5 per cent. solution of arsenoferratin.

Arsenoferratin, 5 parts, is dissolved with the aid of a small quantity of sodium hydroxide in water, 63 parts, glycerin, 20 parts, alcohol, 6 parts, and Angostura essence, 1 part.

Dosage.—4 to 8 Cc. (1 to 2 fluidrams) three to four times daily.

For the determination of Iron and Arsenic in Arsenoferratin, the following methods are furnished:

Twenty-five Cc. of arsenoferratin are evaporated to a viscid consistency in a capacious tared crucible and the residue heated in a drying oven at 100°C . for three hours to constant weight. After the crucible and its contents have been allowed to cool in a desiccator, it is weighed. The weight of the evaporated residue multiplied by 4 should be about 23. The weighed residue is now carefully incinerated, and finally ignited. After it has cooled, it is moistened with nitric acid, and again ignited, and finally taken up with 10 Cc. hydrochloric acid. The solution is diluted with 30 Cc. water, and when cold, 3 Gm. potassium iodide are added and the mixture allowed to stand for an hour in a well-stoppered bottle at the ordinary temperature. It is then titrated with decinormal sodium thiosulphate solution. The iodine liberated should require about 12.5 Cc. of tenth normal thiosulphate solution.

Fifty Cc. of the arsenoferratin contained in a distillation flask of about 500 Cc. capacity, are heated on a water bath and evaporated to about one-third of its original volume. To the residue are now added 80 Cc. of arsenic-free concentrated hydrochloric acid and 20 Cc. arsenic-free, 25 per cent. solution of ferrous chloride, and the arsenic chloride distilled over, the receiver being kept well cooled by means of cold water. The contents of the receiver are then supersaturated with sodium bicarbonate, and the arsenic then titrated with the tenth-normal iodine solution; 0.4 Cc. decinormal iodine solution should be required, corresponding to a content of 0.003 Gm. in 100 Cc. arsenoferratin.

THIGENOL.—Solution of Sodium Sulpho Oleate, Roche.—Thigenol is a solution of the sodium salts of synthetic sulpho-oleic acids, containing 2.85 per cent. sulphur.

Precipitated sulphur is dissolved by boiling in the glyceride of oleic acid; the resulting solution is treated with sulphuric acid, during which process sulphurous acid escapes, and a sulpho-oleic acid is separated out. The separated sulpho-acid is then obtained by pouring into water, and subsequently washing thoroughly. By treatment with solution of sodium hydroxide, there results a solution of sodium sulpho-oleate, which is evaporated in vacuo until it has a specific gravity of 1.05 to 1.00.

Thigenol is a dark brown liquid, having a faint sulphurous odor. It is soluble in one or more parts of water, dilute alcohol, glycerin, chloroform, oily or fatty bases, with any one of which it mixes freely. When water is the vehicle employed, it should be distilled; hard water will cause a precipitate. Thigenol is incompatible with mineral acids or acetic acid.

Actions and Uses.—Thigenol is said to have the actions of sulphur. It is claimed to stimulate granulation, restrict secretions and to be antipruritic.

It is used in diseases of the uterus and its appendages and in skin diseases in which sulphur is commonly employed.

Dosage.—0.2 to 0.6 Gm. (3 to 10 grains) in plain or sweetened water. Thigenol is used locally either in the pure state or mixed in any desired proportion with ointment bases, fats or glycerin according to the intensity of action required.

Manufactured by F. Hoffmann-LaRoche & Co., Basel, Switzerland. (The Hoffmann-LaRoche Chemical Works, New York). U. S. trademark No. 42,295. Not patented.

SUPRACAPSULIN.—The name used for epinephrine by The Cudahy Packing Co., South Omaha, Neb.

Not patented. U. S. trademark No. 72,580.

Supracapsulin Solution.—A solution 1:1000 of supracapsulin in normal salt solution with small quantity of sulphite and 0.5 per cent. of chloral.

(To be Continued)

MEDICAL COLLEGES OF THE UNITED STATES

Data Prepared by the Council on Medical Education

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, several of which do not grant degrees. The name, address, year of organization, history and date when first class graduated is given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination, regardless as to whether the college is sectarian or not. In a few instances where such reports were not received the information published is from other reliable sources. Extracts of rules and the membership of the Association of American Medical Colleges is shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's estimates for 1909.

ALABAMA

Alabama, population 2,112,465, has two medical colleges, the Medical Department of the University of Alabama and the Birmingham Medical College, located, respectively, in Mobile and Birmingham. The population of Mobile is 45,122 and of Birmingham, 49,533.

Birmingham

BIRMINGHAM MEDICAL COLLEGE, Avenue F and Twentieth Street. —Chartered in 1894. The first class graduated in 1895. There are 22 professors and 12 assistants, total 34. The course of instruction embraces four separate sessions of eight months each. The fees are \$100 for each of the first three years and \$125 for the fourth. The Dean is Dr. B. L. Wyman. Registration, 1909-10, 209; graduates, 23. The seventeenth session begins Sept. 28, 1910, and ends May 26, 1911.

Mobile

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE, St. Anthony and Lawrence Streets. —Organized in 1859 as the Medical College of Alabama. Classes were graduated in 1861 and in all subsequent years except 1862 to 1868, inclusive. It was reorganized as the Medical Department of the University of Alabama in 1897. All property was transferred to the University of Alabama in 1907. Present title assumed in 1909. The faculty consists of 8 professors and 17 lecturers and assistants, a total of 25. The course of study covers four years of seven months each. The total fees for each of the first three years is \$100; for the fourth year, \$125. The Dean is Dr. Rhett Goode. The total registration for 1909-10 was 179; graduates, 40. The forty-fifth session begins Sept. 19, 1910, and ends May 9, 1911.

ARKANSAS

Arkansas, population 1,476,582, has two medical colleges, the Medical Department of the University of Arkansas and the College of Physicians and Surgeons, both located in Little Rock, a city of 43,688.

UNIVERSITY OF ARKANSAS MEDICAL DEPARTMENT, Second and Sherman Streets. —Organized in 1879 as the Medical Department of Arkansas Industrial University. The first class graduated in 1880. It assumed the present title in 1899. The faculty consists of 22 professors and 16 lecturers and assistants, total, 38. The course of study covers four years of eight months each. The fees are \$100 for each of the first three years and \$125 for the fourth year. The secretary is Dr. C. E. Witt. Total registration, 1909-10, was 171; graduates, 26. The thirty-second session begins Sept. 15, 1910, and ends May 6, 1911.

COLLEGE OF PHYSICIANS AND SURGEONS, Lincoln Avenue, north of the Union Station. —It was organized in 1906. The first class graduated in 1907. The faculty consists of 28 professors and 12 lecturers and assistants, a total of 40. The course of study covers four years of seven months each. The fees are \$100 for each of the first three years and \$125 for the fourth year. The Dean is Dr. J. P. Runyan. The total registration for 1909-10 was 104; graduates, 29. The fifth session begins Oct. 1, 1910, and ends May 1, 1911.

CALIFORNIA

California, population 1,729,543, has eight medical colleges. Four are located in San Francisco, a city of 400,000 inhabitants. They are Leland Stanford Junior University College of Medicine, Medical Department of the University of California, Hahnemann Medical College of the Pacific and the College of Physicians and Surgeons. The College of Physicians and Surgeons and the California Eclectic Medical College and the Los Angeles Clinical Department of the University of California are situated in Los Angeles, population 300,000. The Oakland College of Medicine and Surgery is in Oakland, population 225,000. The College of Medical Evangelists is located at Loma Linda, a village near San Bernardino, this latter place having a population of 13,500.

Loma Linda

COLLEGE OF MEDICAL EVANGELISTS. —Organized in 1900. The faculty numbers 10. The course extends over five years of nine months each, but includes a study of the Bible, pastoral training and other non-medical subjects. The total fees each year are \$100; matriculation fee, \$5, payable but once; graduation fee, \$10. The Dean is Dr. George Knapp Abbott. The total registration for 1909-10 was 10; no graduates. The second session begins Sept. 29, 1910, and ends June 27, 1911.

Los Angeles

COLLEGE OF PHYSICIANS AND SURGEONS, MEDICAL DEPARTMENT, UNIVERSITY OF SOUTHERN CALIFORNIA, 516 East Washington Street. —Organized in 1903, first class graduated in 1905, became Medical Department, University of Southern California August 11, 1909. The course covers four years of nine months each. The faculty consists of 12 professors and 32 associate professors, lecturers and instructors, a total of 44. The fees are \$150 per year, not including matriculation fee, paid but once, \$5, and graduation fee, \$25. The Dean is Dr. Charles W. Bryson, Delta Building, Los Angeles. The registration for 1909-10 was 69; graduates, 12. The next session begins Sept. 14, 1910 and ends June 15, 1911.

CALIFORNIA ECLECTIC MEDICAL COLLEGE, 846 Lyon Street. —Organized in 1879 at Oakland as the California Medical College. Removed to San Francisco in 1887. Suspended in 1906. Reorganized at Los Angeles with the present title in 1907. Classes were graduated in 1880, and in all subsequent years except 1907. It has a faculty of 30 professors. The Dean is Dr. J. A. Munk. The registration for 1909-10 was 22; graduates 2. The 32d session begins Sept. 19, 1910, and ends May 18, 1911.

Oakland

OAKLAND COLLEGE OF MEDICINE AND SURGERY, Thirty-first and Grove Streets. —Organized in 1900, opened in 1902. The first class graduated in 1906. The faculty numbers 33. The course covers four years of nine months each, and the classes are limited to ten students each. The total fees for each of the four years respectively are \$210, \$200, \$150 and \$150. The Registrar is Dr. Edward N. Ewer. The total registration for 1909-10 was 20; graduates, 3. The ninth session begins Aug. 15, 1910, and ends May 20, 1911.

San Francisco

HAHNEMANN MEDICAL COLLEGE OF THE PACIFIC, Homeopathic, Sacramento. —Organized in 1881 as the Hahnemann Medical College, located in 1884. In 1888 it became the Hahnemann Medical College of San Francisco. It assumed the present name in 1902. It has a faculty of 26 professors and 16 lecturers, instructors, etc., a total of 42. The course covers four years of seven months each. Total fees for the first year are \$155, and \$100 for each of the other three. The Dean is Dr. James W. Ward, 1380 Sutter Street. The total registration for 1909-10 was 34; graduates, 1. The 29th session begins Aug. 11, 1910, and ends April 27, 1911.

COLLEGE OF PHYSICIANS AND SURGEONS, 344 Fourteenth Street. —Organized in 1896. The first class graduated in 1897. The faculty numbers 60. The course covers four years of nine months each. The fees are \$150 each year. The Dean is Dr. Ethan H. Smith. Registration for 1909-10 was 29; graduates, 7. The fifteenth session begins Sept. 1, 1910, and ends June 1, 1911.

San Francisco-Palo Alto

LELAND STANFORD JUNIOR UNIVERSITY, DEPARTMENT OF MEDICINE, University Campus, Palo Alto, and Sacramento and Webster Streets, San Francisco. —Organized in 1871 as the Department of the University of the Pacific. Received in 1870. It became the Medical Department of the University College in 1873. Became Cooper Medical College in 1882. A class was graduated in 1890 and in each subsequent year except 1865 to 1869, inclusive. In 1908 an agreement was made to unite with the Leland Stanford Junior University. By the terms of this agreement Cooper Medical College would continue to teach until the classes which entered prior to August, 1909, had been graduated. The last class will be graduated in 1912. Three years of collegiate work are required for admission. During the next session the work of the first and second years will be given at Palo Alto and the third and fourth years at San Francisco. The faculty of the combined schools consists of 39 professors and 35 lecturers, assistants, etc., a total of 74. The course covers four years of nine months each. The total fees for each of the first and second years are \$175; for the third

year, \$170, and for the fourth year, \$185. The Secretary of the faculty is Dr. Emmet Rixford, San Francisco. The total registration for 1909-10 was 95; graduates, 17. The next session at Palo Alto begins Aug. 25, 1910, and ends May 22, 1911. At San Francisco, the next session begins Aug. 15, 1910, and ends May 5, 1911.

San Francisco-Berkeley-Los Angeles

UNIVERSITY OF CALIFORNIA MEDICAL DEPARTMENT. University Campus, Berkeley; Second and Parnassus Avenues, San Francisco and Buena Vista and Alpine Streets, Los Angeles.—Organized in 1863 as the Toland Medical College. The first class graduated in 1865. In 1872 it became the Medical Department of the University of California. In 1900 it absorbed the College of Medicine of the University of Southern California, which became a clinical department at Los Angeles. Two years of collegiate work are required for admission. The work of the first two years is given at Berkeley and the work of the last two years at either Los Angeles or San Francisco. The faculty is composed of 33 professors and 84 associates and assistants, a total of 117. The course covers four years of nine months each. The fees are: Matriculation, \$5; tuition, \$150 each year. The Dean at San Francisco is Dr. Arnold A. D'Ancona; at Los Angeles, Dr. W. Jarvis Barlow. Total registration of the two schools for 1909-10 was 107; graduates, 13. The 38th session at San Francisco begins Aug. 22, 1910, and ends May 17, 1911. The next session at Los Angeles begins Sept. 15, 1910, and ends May 31, 1911.

COLORADO

Colorado, with a population of 653,000, has two medical colleges. The Denver and Gross College of Medicine is in Denver, which has a population of 156,726, and the Colorado School of Medicine is at Boulder, population 12,000. These two schools will be merged Jan. 1, 1911, in case the amendment to the state constitution is secured giving the State University the right to teach medicine in Denver.

Boulder

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years, except 1898 and 1899. The faculty embraces 23 professors and 20 lecturers and assistants, a total of 43. The work embraces a graded course of four years of nine months each. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The tuition is \$75 per year; there are no other fees. The Dean is Dr. William P. Harlow. The total registration for 1909-10 was 77; graduates, 8. The twenty-ninth session begins Sept. 12, 1910, and ends June 7, 1911.

Denver

THE DENVER AND GROSS COLLEGE OF MEDICINE, 1025 Fourteenth Street.—It is the Medical Department of the University of Denver. Organized in 1902 by the union of the Gross Medical College (organized in 1887) with the Denver College of Medicine (organized in 1880). Classes were graduated in 1903 and in all subsequent years. This college will be merged into the University of Colorado School of Medicine Jan. 1, 1911, when the clinical year of the latter school will be removed to Denver. Fees for each of the last two years, respectively, are \$103 and \$126. The Dean is Dr. George H. Stover, 1443 Glenard Place. The total registration for 1909-10 was 117; graduates, 21. The thirtieth session begins Sept. 12, 1910, and ends June 7, 1911.

CONNECTICUT

Connecticut, with a population of 1,054,336, has only one medical college, located in New Haven, population 127,827.

New Haven

YALE MEDICAL SCHOOL, York and Chapel Streets.—This is the Department of Medicine of Yale University. In 1810 a charter was granted for the establishment of this school, and 1813 it was organized as the Medical Institution of Yale College. The first class graduated in 1814. The faculty consists of 16 professors and 50 lecturers and assistants, a total of 66. The requirement for admission is two full years of collegiate work plus evidence of satisfactory preparation in physics, general inorganic chemistry and general biology. The course covers four years of nine months each. The fees are \$150 each year; in the first year there are additional fees amounting to \$23, and in the second \$3, and there is a graduation fee of \$10. The Dean is Dr. George Blumer, New Haven. The total registration for 1909-10 was 124; graduates, 27. The ninety-eighth session begins Sept. 29, 1910, and ends June 21, 1911.

DISTRICT OF COLUMBIA

Washington, population 322,212, has three medical colleges; George Washington University Department of Medicine, Georgetown University School of Medicine and Howard University Medical Department.

Washington

GEORGE WASHINGTON UNIVERSITY, DEPARTMENT OF MEDICINE, 1325 H Street, N.W.—Organized in 1825 as the National Medical College, Medical Department of Columbian College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed in 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1904, by an act of Congress, it received its present title. The faculty is composed of 35 professors and 46 instructors, demonstrators and assistants, a total of 81. The course covers four years of eight

months each. The total fees are \$150 per year. The Dean is Dr. William C. Borden. The total registration for 1909-10 was 115; graduates, 26. The 89th session begins Sept. 28, 1910, and ends June 7, 1911.

GEORGETOWN UNIVERSITY, SCHOOL OF MEDICINE, 920 H Street, N.W.—Organized in 1851. The first class graduated in 1852. The faculty contains 20 professors, 54 instructors and assistants; total 74. The course of study covers four terms of eight and one-half months each. The fees are \$150 each year. The Dean is Dr. George M. Kober, 1600 T Street. The registration for 1909-10 was 117; graduates, 14. The sixtieth session begins Sept. 26, 1910, and ends June 11, 1911.

HOWARD UNIVERSITY, MEDICAL DEPARTMENT, Fifth and W Streets, N.W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 23 professors and 23 lecturers and assistants, 46 in all. The course covers four years of thirty weeks each. The fees of each session are \$100, plus \$7 for graduation. The Dean is Dr. Edward A. Balloch. Registration for 1909-10 was 210; graduates, 30. The forty-third session begins Oct. 1, 1910, and ends May 25, 1911.

GEORGIA

Georgia, population 2,557,412, has five medical colleges; Medical College of Georgia, located in Augusta, population 44,967; Atlanta College of Physicians and Surgeons, Atlanta School of Medicine, the Georgia College of Eclectic Medicine and Surgery, and the Hospital Medical College are in Atlanta, a city of 111,825 population.

Atlanta

ATLANTA COLLEGE OF PHYSICIANS AND SURGEONS, Butler and Armstrong Streets.—Organized in 1898 by union of the Atlanta Medical College, organized in 1855, and Southern Medical College, organized in 1878. The first class graduated in 1899. It has a faculty of 24 professors and 31 assistants, a total of 55. The course of study covers four years of seven months each. Fees: \$100 each year. The Dean is Dr. W. S. Elkin, 29 Luckie Street. Total registration of students for 1909-10 334; graduates, 63. The thirteenth session begins Sept. 21, 1910, and ends May 2, 1911.

ATLANTA SCHOOL OF MEDICINE, Luckie, Barton and Cain Streets.—Organized in September, 1905. The first class graduated in 1906. The course covers four years of seven months each. It has a faculty of 13 professors and 27 lecturers and assistants, a total of 40. The fees for each of the first two years are \$70; for each of the last two, \$80. The Proctor is Dr. Edward G. Jones. The total registration for 1909-10 was 227; graduates, 42. The sixth session begins Sept. 20, 1910, and ends April 20, 1911.

GEORGIA COLLEGE OF ECLECTIC MEDICINE AND SURGERY, Tanner Street, near Edgewood Avenue.—Organized in 1877 as the Georgia Eclectic Medical College. In 1884 it acquired the charter of the College of American Medicine and Surgery. It assumed its present name in 1886. The first class graduated in 1878. The faculty consists of 14 professors and 6 assistants, a total of 20. Tuition is \$80 per year; graduation fee, \$25. The Proctor is Dr. E. B. Thomas. Total registration for 1909-10 was 90; graduates, 35. The next session begins Sept. 21, 1910, and ends April 21, 1911.

HOSPITAL MEDICAL COLLEGE, Eclectic, Capitol Avenue and Richardson Street.—Organized in 1908. The faculty consists of 16 professors, and 8 lecturers and assistants, a total of 24. The tuition fees are \$80 each year; graduation fee, \$30. The Dean is Dr. William Bernard Lingo. Total registration for 1909-10 was 43; graduates, 15. The next session begins Sept. 15, 1910, and ends April 1, 1911.

Augusta

MEDICAL COLLEGE OF GEORGIA, Sixth and Telfair Streets.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Classes were graduated in 1833 and in all subsequent years, except 1862 and 1863. The faculty includes 17 professors and 17 assistants, 34 in all. The course is four years of seven months each. Fees for each of the four years are \$100. The Dean is Dr. W. H. Doughty, Jr. The total registration for 1909-10 was 113; graduates, 13. The seventy-ninth session begins Oct. 1, 1910, and ends May 1, 1911.

ILLINOIS

Illinois, population 5,717,229, has eleven medical colleges, two of which are night schools, all located in Chicago, a city of 2,224,491 inhabitants, and are as follows: Rush Medical College, Northwestern University Medical School, College of Physicians and Surgeons, Hahnemann Medical College, Bennett Medical College, Hering Medical College, Jenner Medical College, American Medical Missionary College, College of Medicine and Surgery, Chicago College of Medicine and Surgery and Reliance Medical College.

Chicago

RUSH MEDICAL COLLEGE.—This school was founded in 1837, organized in 1843, was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 88 professors, 181 associates, instructors, etc., a total of 269. The requirements for admission are a four-year high school education and, in addition thereto, two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. The course covers four years of eight and a half months each. An optional fifth year, consisting of a hospital internship or of a fellowship in

one of the departments is offered. All freshmen and sophomore studies are given at the University of Chicago. The last two years are given in the clinical building at the corner of Wood and Harrison Streets. The total fees are \$180 each year. A matriculation fee of \$5 is paid but once, and there are incidentals amounting to from \$2 to \$5 annually. The Dean is Dr. John M. Dodson, 34 Washington Street. Total registration 1909-10 was 468; graduates, 85. The sixty-eighth session begins Oct. 1, 1910, and ends June 17, 1911.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL. Dearborn Street, between Twenty-fourth and Twenty-fifth Streets.—Organized in 1859 as the Medical Department of Lind University. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. The faculty comprises 53 professors and 110 lecturers and assistants, a total of 163. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus one year of college work including courses in physics, chemistry, biology and modern languages. The course covers four years of thirty weeks each. The fees for the first year are \$190; second year, \$200; third year, \$191.50, and fourth year, \$185. The Secretary is Dr. Charles Louis Mix. The total registration for 1909-10 was 637; graduates, 142. The fifty-first session begins Oct. 4, 1910, and ends May 29, 1911.

COLLEGE OF PHYSICIANS AND SURGEONS, Honore and Congress Streets.—Organized in 1882. The first class graduated in 1883. It became the Medical Department of the University of Illinois in 1896. The faculty is composed of 47 professors, 103 assistants and instructors, a total of 150. The fees are \$155 each for the first two years, \$150 for the third, and \$175 for the fourth year. The Dean is Dr. William E. Quine, 103 State Street. Total registration for 1909-10 was 526; graduates, 131. The twenty-ninth session begins Sept. 27, 1910, and ends June 7, 1911.

AMERICAN MEDICAL MISSIONARY COLLEGE, 888 Thirty-fifth Place.—Organized in 1895. The first class graduated in 1899. Part of the work is given at Battle Creek, Michigan. The faculty numbers 22 professors and 10 assistants, a total of 32. The course covers four years of nine months each. Total fees for the four years, respectively, are \$182, \$182, \$175, \$175. The Registrar is Dr. Benton N. Colver, Battle Creek, Mich. Total registration for 1909-10 was 67; graduates, 9. The sixteenth session opens Sept. 13, 1910, and closes June 9, 1911.

CHICAGO COLLEGE OF MEDICINE AND SURGERY, 337 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College). The latter part of the name was dropped in 1902 when it became the Medical Department of Valparaiso University. Eclecticism was dropped in 1905. The name was changed to the above in 1907. The course covers four years of eight months each. The faculty consists of 39 professors and 34 lecturers and assistants, a total of 73. The total fees for each of the four years, respectively, are \$120, \$110, \$100 and \$100. The Registrar is Dr. G. E. Wyneken. The total registration for 1909-10 was 580; graduates, 89. The tenth session begins Sept. 27, 1910, and ends May 15, 1911.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF CHICAGO, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. The faculty includes 38 professors and 46 lecturers, assistants, etc., a total of 84. The course extends over four years of eight months each. The tuition fees are \$100 each year. The Registrar is Dr. W. Henry Wilson. The total registration for 1909-10 was 131; graduates, 31. The fifty-first session begins Sept. 27, 1910, and ends May 25, 1911.

HEBER MEDICAL COLLEGE, Homeopathic, Wood and York Streets.—Organized in 1892. The first class graduated in 1893. The faculty consists of 29 professors and 23 assistants, instructors, etc., a total of 52. The tuition fees are \$100 per year. The Dean is Dr. Robert N. Morris. The total registration for 1909-10 was 42; graduates, 12. The next session begins Sept. 27, 1910, and ends June 1, 1911.

BENNETT MEDICAL COLLEGE, MEDICAL DEPARTMENT OF LOYOLA UNIVERSITY, Fulton and Ada Streets.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Dropped Eclecticism in 1909. In 1910 the Illinois Medical College merged with it and it became the Medical Department of Loyola University. The first class graduated in 1870. The faculty numbers 57. The course covers four years of thirty weeks each. Fees for each year are \$125, with a matriculation fee, paid once, of \$5. The President is Dr. John D. Robertson. The total registration for the two colleges in 1909-10 was 231; graduates, 37. The next session begins Sept. 20, 1910, and ends May 31, 1911.

COLLEGE OF MEDICINE AND SURGERY, Physiomedical, 721-725 South Wood Street.—Organized in 1885 as the Chicago Physiomedical Institute. The first class graduated in 1886. In 1891 the name was changed to the Chicago Physiomedical College. In 1899 it took its present name. The faculty numbers 61. The school year has three divisions of 16 weeks each. Attendance on any two will constitute a year's work. Fees for the four years, respectively, are \$120, \$115, \$115 and \$140. The Secretary is Dr. William F. Schaare. The total registration for 1909-10 was 57; graduates, 16. The next session begins Sept. 21, 1910, and ends May 12, 1911.

JENNER MEDICAL COLLEGE, a night school located at 196 East Washington Street.—Organized in 1892. Classes were graduated in 1896 and in all subsequent years. The faculty numbers 50. Registrar, Dr. John D. MacKellar. Total registration for 1909-10 was 205; graduates, 23. The next session begins Aug. 29, 1910, and ends June 30, 1911.

RELIANCE MEDICAL COLLEGE. A night school, located at Washington Boulevard and Halsted Street.—Organized in 1907. The faculty numbers 65. The total fees are \$130 for each of the first two years and \$125 for each of the last two. Registration for 1909-10 was 80; graduates, 7. The President is Dr. J. F. Burkholder. The next session begins Sept. 1, 1910, and ends June 27, 1911.

INDIANA

Indiana, population 2,808,115, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 241,826 people, except that the work of the first two years is offered also at Bloomington, population 5,000, the seat of the University.

Bloomington and Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1893, but did not give all of the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1907 by the merger of the Medical College of Indiana (organized in 1869) and the Fort Wayne College of Medicine (organized in 1879) merged into it. The faculty consists of 100 professors and 89 lecturers, associates and assistants, a total of 189. Two years of collegiate work are required for admission. The work of the first two years may be taken either at Bloomington or at Indianapolis. The clinical work is all done at Indianapolis. A fifth optional year leading to the "M.D. cum laude" has been added. The Secretary at Bloomington is Dr. B. D. Myers; at Indianapolis, Dr. Edmund D. Clark, Newton-Claypool Bldg. The total registration for 1909-10 was 248; graduates, 59. The next session begins Sept. 22, 1910, and ends June 16, 1911.

IOWA

Iowa, population 2,192,608, has three medical colleges. The College of Medicine of the State University of Iowa and the College of Homeopathic Medicine of the State University of Iowa are located in Iowa City, population 8,197. In Des Moines, population 86,415, is the College of Medicine of Drake University.

Des Moines

DRAKE UNIVERSITY COLLEGE OF MEDICINE.—First two years given on the University Campus, University Avenue, between Twenty-fifth and Twenty-eighth Streets, the clinical years at Fourth and Center Streets. Organized in 1882 as the Iowa College of Physicians and Surgeons. The first class graduated in 1883. In 1887 it became affiliated with and in 1900 became the Medical Department of Drake University. The faculty consists of 20 professors and 30 assistants, lecturers, etc., a total of 50. Two years of collegiate work, including courses in physics, chemistry and histology, are required for admission. The work covers four years of nine months each. The total fees are \$150 each year. The Dean is Dr. William Wilson Pearson. The total registration for 1909-10 was 108; graduates, 23. The twenty-eighth session begins Sept. 19, 1910, and ends June 14, 1911.

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE. University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. The faculty is made up of 15 professors, 25 lecturers, demonstrators and assistants, a total of 40. Two years of collegiate work, including courses in physics, chemistry and biology, are required for admission. The course of study covers four years of thirty-six weeks each. Total fees for each year are \$50 plus a matriculation fee of \$10 paid but once and a graduation fee of \$10. The Dean is Dr. James R. Guthrie, Dubuque. Total number of students registered for 1909-10 was 190; graduates, 44. The forty-first session begins Sept. 19, 1910, and ends June 14, 1911.

STATE UNIVERSITY OF IOWA COLLEGE OF HOMEOPATHIC MEDICINE.—Organized in 1877. The first class graduated in 1878. The faculty is composed of 11 professors and 19 lecturers and assistants, a total of 30. The work of the first two years is taken in classes with the students of the College of Medicine of the State University of Iowa, and it has the same entrance requirements. The fees are \$50 each year, plus a matriculation fee of \$10, paid but once and a graduation fee of \$10. The Dean is Dr. George Royal. Total registration for 1909-10 was 35; graduates, 7. The thirty-third session begins Sept. 19, 1910, and ends June 14, 1911.

KANSAS

Population 1,703,002, has two medical colleges. Kansas Medical College is in Topeka, population 44,757. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,915, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 277,427.

Lawrence and Kansas City

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE.—Organized in 1880. In 1905 it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. The faculty, including lecturers and clinical assistants, numbers 87. The requirements for admission are two years of collegiate work. The course covers four years of about nine months each. The total fees are, for the first two years, \$60 per year (and for non-residents of the state, \$70); for the last two years, \$100 and \$110, respectively. The Dean at Lawrence is Dr. Mervin T. Sudler. The Dean at Kansas City is Dr. George Howard Hoxie. The total registration for 1909-10 was 89; graduates, 20. The thirty-first session begins Sept. 19, 1910, and ends June 7, 1911.

Topeka

KANSAS MEDICAL COLLEGE, 521 Quincy Street.—Organized in 1890. The first class graduated in 1892. It has been the Medical Department of Washburn College since 1903. It has a faculty of 26 professors and 18 lecturers and assistants, a total of 44. The course covers four years of nine months each. Fees, \$75 yearly. Matriculation fee of \$5 paid but once. The Dean is Dr. William E. McVey. Total registration for 1909-10 was 67; graduates, 12. The twenty-first session begins Sept. 14, 1910, and ends June 7, 1911.

KENTUCKY

Kentucky, population 2,406,859, has three medical colleges. They are all situated in Louisville, a city of 236,688 inhabitants, and are as follows: University of Louisville Medical Department, Southwestern Homeopathic Medical College and Louisville National Medical College.

Louisville

UNIVERSITY OF LOUISVILLE MEDICAL DEPARTMENT, Eighth and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. In 1908 it absorbed the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. It has a faculty of 42 professors and 50 lecturers and assistants, a total of 92. The course covers four years of thirty weeks each. The fees are \$105 each year; graduation fee, \$25. The Dean is Dr. T. C. Evans. The total registration for 1909-10 was 624; graduates, 202. The next session begins Oct. 10, 1910, and ends May 19, 1911.

SOUTHWESTERN HOMEOPATHIC MEDICAL COLLEGE AND HOSPITAL, Floyd and Walnut Streets.—Organized in 1892. The first class graduated in 1894. It has a faculty of 12 professors and 15 lecturers and assistants, 27 in all. The curriculum covers four years of seven months each. Total fees: First three years \$80 each and \$100 for the fourth. The Dean is Dr. George S. Coon. Total number of students for 1909-10 was 13; graduates, 2. The eighteenth session begins Oct. 6, 1910, and ends May 25, 1911.

LOUISVILLE NATIONAL MEDICAL COLLEGE, Colored. 112 West Green Street.—Organized in 1888. The first class graduated in 1889. The faculty numbers 23. The course covers four years of seven months each. The fees are \$60, \$55, \$55 and \$75 for the four years, respectively. The Dean is Dr. E. S. Porter. Total registration for 1909-10 was 31; graduates, 8. The next session begins Oct. 1, 1910, and ends May 18, 1911.

LOUISIANA

Louisiana, having a population of 1,618,358, contains two medical colleges: Medical Department of the Tulane University of Louisiana and Flint Medical College of New Orleans University. They are both situated in New Orleans, a city of 327,662 people.

New Orleans

MEDICAL DEPARTMENT OF THE TULANE UNIVERSITY OF LOUISIANA, University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years, except 1863-65, inclusive. It was transferred to Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University in 1884. The faculty numbers 73. The course covers four years of thirty-two weeks each. One year of collegiate work is required for admission. Total fees are \$160 per year. The Dean is Dr. Isadore Dyer. The total registration for 1909-10 was 417; graduates, 103. The seventy-seventh session begins Oct. 1, 1910, and ends June 1, 1911.

FLINT MEDICAL COLLEGE OF NEW ORLEANS UNIVERSITY, Colored. 1506 Canal Street.—Organized in 1889 as the Medical College of New Orleans University. A class was graduated in 1892 and in each subsequent year, except 1896. Took the above name in 1901. The faculty numbers 15. The course covers four years of thirty weeks each. Total fees for each of the four years, respectively, are \$60, \$56, \$50 and \$50. The Dean is Dr. R. T. Fuller. Total registration for 1909-10 was 19; graduates, 4. The twenty-first session begins Sept. 29, 1910, and ends May 9, 1911.

MAINE

Maine, population 724,508, has one medical college, located in Brunswick and Portland, the latter having a population of 57,675.

Brunswick-Portland

MEDICAL SCHOOL OF MAINE. The medical department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street.—Organized in 1820. The first class graduated in 1820. The faculty numbers 37. The course covers four years of eight months each. The total fees are \$120 for the first year and \$110 for each of the other three years. The Dean is Dr. Alfred Mitchell, Brunswick. Total number of students in 1909-10 was 74; graduates, 20. The nineteenth session begins Oct. 13, 1910, and ends June 21, 1911.

MARYLAND

Maryland, with a population of 1,319,132, contains six medical colleges, all located in Baltimore, a city with 576,023 inhabitants. They are as follows: Johns Hopkins University Medical Department, School of Medicine of the University of Maryland, College of Physicians and Surgeons, Baltimore Medical College, Atlantic Medical College and Maryland Medical College.

Baltimore

JOHNS HOPKINS UNIVERSITY, MEDICAL DEPARTMENT, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 23 professors and 89 clinical professors, etc., a total of 112. The requirements for admission demand that the applicant either has (a) completed the chemical-biologic course which leads to the A.B. degree in the university or (b) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course. The course extends over four years of eight and one-half months each. The charge for tuition is \$200 per annum. The Dean is Dr. William H. Howell, 232 West Lanvale Street. Total registration for 1909-10 was 334; graduates, 72. The eighteenth session begins Oct. 5, 1910, and ends June 14, 1911.

COLLEGE OF PHYSICIANS AND SURGEONS, Calvert and Saratoga Streets.—Organized in 1872. The first class graduated in 1873. In 1878 it united with Washington University School of Medicine. The faculty numbers 58. The work covers four years of eight months each. Total fees are \$155 for each of the first three years and \$185 for the fourth year. The Dean is Dr. Charles F. Bevan. The total number of students registered in 1909-10 was 283; graduates, 66. The thirty-ninth session begins Oct. 1, 1910, and ends June 1, 1911.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. The faculty numbers 62. The course covers four years of eight months each. The total fees are \$155 each year; graduation fee, \$30. The Dean is Dr. R. Dorsey Coale. The total number of students registered in 1909-10 was 309; graduates, 85. The 104th session begins Oct. 1, 1910, and ends June 1, 1911.

BALTIMORE MEDICAL COLLEGE, Madison Street and Linden Avenue.—Organized in 1881. The first class graduated in 1882. The faculty numbers 71. The course covers four years of eight months each. Total fees for the first three years are \$125 per year; for the fourth year, \$155. The Dean is Dr. David Streett. The total number of students registered in 1909-10 was 270; graduates, 54. The twenty-ninth session begins Sept. 20, 1910, and ends May 27, 1911.

MARYLAND MEDICAL COLLEGE, 1114 West Baltimore Street.—Organized in 1898. The first class graduated in 1899. The faculty numbers 38. The course covers four years of eight months each. Total fees for the four years, respectively, are \$111, \$111, \$105 and \$135. The Dean is Dr. W. S. Smith. The total registration for 1909-10 was 112; graduates, 36. The next session begins Oct. 1, 1910, and ends June 1, 1911.

ATLANTIC MEDICAL COLLEGE, Mount Street, north of Riggs Avenue.—Organized in 1891 as the Southern Homeopathic Medical College. In 1907 it assumed the above name and became "non-sectarian." The Dean is Dr. Eldridge C. Price. The total registration for 1909-10 was 19, of which number 14 graduated. Among these graduates are several who are reported as having failed miserably in other medical colleges.

MASSACHUSETTS

Massachusetts, population 3,162,347, has four medical colleges: Medical School for Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and Tufts College Medical School. They are all situated in Boston, a city of 622,970.

Boston

MEDICAL SCHOOL OF HARVARD UNIVERSITY, Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 35 professors and 136 associates, assistants, etc., a total of 171. Candidates for admission "must present a degree in arts, literature, philosophy or science from a recognized college or scientific school, with the exception of such persons as may be admitted by special vote of the faculty." The session is four years of eight months each. Fees: Matriculation, \$5; tuition, \$200 each year. The Dean is Dr. Henry A. Christian. The total registration for 1909-10 was 279; graduates, 66. The 120th session begins Sept. 29, 1910, and ends June 1, 1911.

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. The faculty includes 27 professors, 39 associates, etc., a total of 66. The course covers four years of eight months each. Total fees for the first, second and third years, \$127 each, and for the last year, \$155. The Dean is Dr. John P. Sutherland, 302 Beacon Street. Total registration for 1909-10 was 79; graduates, 14. The thirty-eighth session begins Oct. 6, 1910, and ends June 7, 1911.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 33 professors and 70 assistants, lecturers, etc., a total of 103. The course covers four years of eight months each. The total fees are \$155 each year. The Secretary is Dr. Frederic M. Briggs, 31 Massachusetts

Avenue. Total number of students for 1909-10 was 428; graduates, 52. The seventeenth session begins Sept. 28, 1910, and ends June 1, 1911.

COLLEGE OF PHYSICIANS AND SURGEONS, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. The course covers four years of nine months each. The college announcement gives the names of 226 "matriculants and applicants" for the session of 1908-9, which included both dental and medical students. From other reliable information it seems that only about 80 medical students actually attended throughout the session of 1909-10. There were 28 graduates reported. The faculty numbers 56. The Dean is Dr. Thomas D. Crothers. The next session begins Sept. 21, 1910, and ends June 14, 1911.

MICHIGAN

Michigan, population 2,666,308, has four medical colleges. Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic College of the University of Michigan, are located at Ann Arbor, a city of 14,711 people. Detroit, a city of 384,855 inhabitants, contains two medical colleges, the Detroit College of Medicine and the Detroit Homeopathic College.

Ann Arbor

UNIVERSITY OF MICHIGAN DEPARTMENT OF MEDICINE AND SURGERY.—Organized in 1850. The first class graduated in 1851. It has a faculty composed of 18 professors, 36 associates, instructors, etc., a total of 74. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students for the entire course of four years is \$350 and for others about \$400. The Dean is Dr. Victor C. Vaughan. The total registration for 1909-10 was 315; graduates, 64. The sixty-first session begins Oct. 4, 1910, and ends June 29, 1911.

UNIVERSITY OF MICHIGAN HOMEOPATHIC COLLEGE.—Organized in 1875. The first class graduated in 1877. Although the work of the first two years is taken in the same classes with the Department of Medicine and Surgery of the University of Michigan, nevertheless the entrance requirements are still kept at only a high-school education—a difference of two years of collegiate work! The Dean is Dr. W. B. Hinsdale. The total registration for 1909-10 was 74; graduates, 11. The next session begins Oct. 4, 1910, and ends June 29, 1911.

Detroit

DETROIT COLLEGE OF MEDICINE, St. Antoine, Catherine and Mullett Streets and Gratiot Avenue.—Organized in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. The first class graduated in 1886. The faculty embraces 25 professors, 88 lecturers, instructors, etc., a total of 113. The course covers four years of eight months each. The Registrar is Dr. F. B. Walker. The total registration for 1909-10 was 152; graduates, 38. The twenty-sixth session begins Sept. 21, 1910, and ends May 25, 1911.

DETROIT HOMEOPATHIC COLLEGE, Lafayette Avenue and Third Street.—Organized in 1899. A class was graduated in 1900 and in each subsequent year. It has a faculty of 36. The course embraces four years of eight months each. Fees: From \$75 to \$95 per year. The Registrar is Dr. Fred E. Thompson. The total registration for 1909-10 was 26; graduates, 5. The twelfth session begins Sept. 14, 1910, and ends May 19, 1911.

MINNESOTA

Minnesota, population 2,162,726, contains one medical college, the College of Medicine and Surgery of the University of Minnesota, situated in Minneapolis. Minneapolis and St. Paul are practically one city, and have a combined population of 477,640.

Minneapolis

UNIVERSITY OF MINNESOTA COLLEGE OF MEDICINE AND SURGERY.—Organized in 1883; reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital Medical College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged and provision made for elective chairs in didactic materia medica and therapeutics. Students electing these courses on graduation will receive the degree of Doctor of Medicine in Homeopathy. The faculty includes 61 professors and clinical professors and 67 associate professors, assistants, etc., a total of 128. The curriculum covers four years of nine months each. The entrance requirements are two years of university work which must include one year each of physics, general chemistry, qualitative analysis, zoology or botany, and German or French, all in addition to a four-year high school course, including Latin. Total fees for the first year are \$150, for each of the other years \$100; microscope rental, \$1 to \$4 per annum. The Dean is Dr. F. F. Westbrook. The total registration for 1909-10 was 176, including 16 Hamline University students; the graduates of 1910 numbered 34, including 3 which were granted degrees by Hamline University. The twenty-third session begins Sept. 13, 1910, and ends June 8, 1911.

MISSISSIPPI

Mississippi, population 1,786,773, has two medical colleges, the Medical Department of the University of Mississippi giving only the first two years of the medical course, is located at

Oxford, a city of 1,825 inhabitants. The Mississippi Medical College is located at Meridian, population 21,937.

Meridian

MISSISSIPPI MEDICAL COLLEGE, Fifth Street and Twenty-fourth Avenue.—Organized in 1906. The first class graduated in 1907. The faculty numbers 25. The course covers four years of seven months each. The Secretary is Dr. W. W. Hamilton. The total registration for 1909-10 was 96; graduates, 18. The fifth session begins Oct. 3, 1910, and ends April 30, 1911.

Oxford

UNIVERSITY OF MISSISSIPPI MEDICAL DEPARTMENT.—Organized in 1903. Gave only the first two years of the medical course until 1909, when a clinical department was organized at Vicksburg. Graduated one class in 1910, when the clinical years of the course were discontinued. The course covers four years of eight and a half months each. The work of the first two years is given at Oxford. The faculty numbers 30. The Dean is Dr. W. S. Leathers. The total registration for 1909-10 was 49; graduates, 4. The eighth session begins Sept. 23, 1910, and ends June 1, 1911.

MISSOURI

Missouri, population 3,491,397, has ten medical colleges. St. Louis, population 686,369, contains five of these, viz., St. Louis College of Physicians and Surgeons, American Medical College, the School of Medicine of St. Louis University, Washington University Medical Department and Barnes Medical College. Kansas City, which with Kansas City, Kan., has a total population of 277,427, has three colleges, namely: University Medical College, the Kansas City Hahnemann Medical College and the Eclectic Medical University. Ensworth Medical College is located in St. Joseph, population 125,504. The Department of Medicine of the University of Missouri is at Columbia, a town of 5,651 people.

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1859, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 10 professors, 8 assistant professors, lecturers, etc., a total of 18. The course covers two years of nine months each. The entrance requirements are two years of college work, including English, 5 hours; German, 5 hours; general zoology, 5 hours; physics, 5 hours; inorganic chemistry, 5 hours; Elective, 35 hours. Equivalent work in foreign language may be substituted for the English and German. Total fees are \$70 each year. The Dean is Dr. C. M. Jackson. Total registration of students for 1909-10 was 29. The next session begins Sept. 22, 1910, and ends June 8, 1911.

Kansas City

UNIVERSITY MEDICAL COLLEGE OF KANSAS CITY, 911 East Tenth Street.—Organized in 1881 as the University of Kansas City Medical Department. The first class graduated in 1882. It was reorganized in 1888 under the present title. Its faculty comprises 47 professors and 19 lecturers and assistants, a total of 66. The course of study covers four years of thirty weeks each. The total fees for each year are \$100; graduation fee, \$25. The Dean is Dr. J. M. Frankenburger. The total registration for 1909-10 was 186; graduates, 48. The twenty-ninth session begins Sept. 6, 1910, and ends May 15, 1911.

KANSAS CITY HAHNEMANN MEDICAL COLLEGE, 1020 East Tenth Street.—Organized in 1888 as the Kansas City Homeopathic Medical College. The first class graduated in 1899. In 1902 it united with the Hahnemann Medical College of the Kansas City University, taking the present title. The Dean is Dr. William E. Cramer. Total registration for 1909-10 was 58; graduates, 21. The next session begins Sept. 7, 1910, and ends May 6, 1911.

ECLECTIC MEDICAL UNIVERSITY, 1423 Independence Avenue.—Organized at Kansas City, Mo., in 1898 with the present title. Moved to Kansas City, Kan., in 1907, and took the name of Western Eclectic College of Medicine and Surgery. Returned to Kansas City, Mo., in 1909 and resumed the present title. First class graduated in 1900. The faculty numbers 32. Fees for the four years, respectively, are \$90, \$95, \$100 and \$115. Course covers four years of about eight months each. The Secretary is Dr. M. D. L. Isley. The total registration for 1909-10 was 21; graduates, 9. The thirteenth sessions begins Sept. 6, 1910, and ends April 30, 1911.

St. Joseph

THE ENSWORTH MEDICAL COLLEGE, Seventh and Jule Streets.—Organized in 1876 as the St. Joseph Hospital Medical College. In 1882 it merged with the College of Physicians and Surgeons to form the St. Joseph Medical College. In 1888 changed name to Ensworth Medical College. In 1905 merged with the Central Medical College, organized in 1894, to form the Ensworth-Central Medical College. In 1907 the present title was resumed. The faculty numbers 34. The course covers four years of thirty weeks each. The fees for the four years, respectively, are \$90, \$95, \$75 and \$95. The Secretary is Dr. T. E. Potter. Total registration for 1909-10 was 68; graduates, 17. The next session begins Sept. 14, 1910, and ends May 1, 1911.

St. Louis

WASHINGTON UNIVERSITY MEDICAL SCHOOL, 1806 Locust Street.—Organized in 1842 as the Medical Department of St. Louis University. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Washington University

Medical School. In 1899 it absorbed the Missouri Medical College. The faculty comprises 48 professors, 51 lecturers and instructors, a total of 99. The course is four years of eight months each. The total fees for the four years are, respectively, \$137.50, \$132.25, \$117.25 and \$101.25. The Dean is Dr. George Dock. The total registration for 1909-10 was 205; graduates, 56. The next session begins Sept. 20, 1910, and ends June 8, 1911.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, Grand Avenue and Caroline Street.—Organized in 1901 by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 37 professors, 75 lecturers and assistants, a total of 112. The curriculum covers four years of eight months each. The total fees are \$110 each year. The Dean is Dr. E. P. Lyon. The total registration for 1909-10 was 261; graduates, 66. The next session begins Oct. 1, 1910, and ends May 29, 1911.

ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS, Jefferson Avenue and Gamble Street.—Organized in 1869. Classes graduated in 1870 and in each subsequent year until 1873, when it suspended. It was reorganized in 1879. Classes graduated in 1880 and subsequent years. It has a faculty of 25 professors, 24 lecturers, instructors, etc., a total of 49. The course covers four years of seven months each. Total fees for each of the four years, respectively, are \$105, \$100, \$100 and \$105. The Dean is Dr. Waldo Briggs, 2600 Gamble Street. Total registration for 1908-9 was 228; there were 42 graduates in 1910. The next session begins Sept. 15, 1910, and ends May 6, 1911.

BARNES MEDICAL COLLEGE, Garrison and Lawton Avenues.—Organized in 1892. Classes graduated in 1893 and in all subsequent years except 1899. The faculty consists of 40 professors and 8 lecturers and assistants, a total of 48. The course covers four years of eight months each. The total fees are \$100 each year. The Dean is Dr. A. R. Kieffer. Total registration for 1909-10 was 184; graduates, 51. The next session begins Sept. 14, 1910, and ends May 13, 1911.

AMERICAN MEDICAL COLLEGE, 407 South Jefferson Avenue.—Organized in 1873 as an Eclectic College. Eclecticism dropped in 1910. Two classes were graduated each year from 1874 to 1883, inclusive. Since then one class has graduated each year. The course covers four years of nine months each. The fees are \$100 each year. The Dean is Dr. James Moore Ball. The total registration for 1909-10 was 39; graduates, 7. The next session begins Sept. 5, 1910, and ends June 1, 1911.

NEBRASKA

Nebraska, population 1,069,579, has three medical colleges: The University of Nebraska College of Medicine and the John A. Creighton Medical College at Omaha, population 134,972, and the Lincoln Medical College at Lincoln, population 52,308.

Lincoln and Omaha

COLLEGE OF MEDICINE, UNIVERSITY OF NEBRASKA, Eleventh and R Streets, Lincoln, and Twelfth and Pacific Streets, Omaha.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. Two years of collegiate work are required for admission. The first two years are given at Lincoln; the last two at Omaha. The faculty is composed of 28 professors and 40 lecturers and instructors, total 68. The fees are approximately \$100 per annum. Total registration for 1909-10 was 76; graduates, 16. The next session at Lincoln begins Sept. 20, 1910, and ends June 7, 1911. For the advanced classes at Omaha the next session begins Sept. 13, 1910, and ends May 27, 1911.

Lincoln

LINCOLN MEDICAL COLLEGE. Eclectic. Corner 13th and P Streets. It is the Medical Department of Cotner University.—Organized in 1890. The first class graduated in 1891. The faculty numbers 37. The course of study covers four years of thirty-two weeks each. The total fees are \$90 each year. The Secretary is Dr. R. H. Spradling, 1315 O Street. The total registration for 1909-10 was 58; graduates, 13. The twenty-first session begins Sept. 7, 1910, and ends May 20, 1911.

Omaha

JOHN A. CREIGHTON MEDICAL COLLEGE, Fourteenth and Davenport Streets. It is the Medical Department of Creighton University.—Organized in 1892. The first class graduated in 1895. It has a faculty of 31 professors and 18 associates, lecturers and assistants, a total of 49. The course of study embraces four years of eight months each. The total fees for the four years, respectively, are \$105, \$100, \$100 and \$105. The Dean is Dr. D. C. Bryant, McCague Building. Total number of students registered in 1909-10 was 194; graduates, 44. The nineteenth session begins Sept. 5, 1910, and ends April 29, 1911.

NEW HAMPSHIRE

New Hampshire, population 443,140, has one medical college, located at Hanover, population 1,884.

Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is the Medical Department of Dartmouth College. The faculty is made up of 17 professors and 6 instructors, a total of 23. Two years of collegiate work are required for admission. The course covers four years of eight months each. The fees are \$125 each year. The Dean is Dr. William T. Smith. The total registration for 1909-10 was 57; graduates, 10. The work of the first and

second years begins with that of the academic department Sept. 22, 1910, and ends June 24, 1911; for the advanced classes the course begins Aug. 2, 1910, and ends March 28, 1911.

NEW YORK

New York State, population 8,706,039, has eleven medical colleges. Eight of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, New York Medical College and Hospital for Women, Eclectic Medical College of the City of New York, Cornell University Medical College, the University and Bellevue Hospital Medical College, and Fordham University School of Medicine, are located in New York City, population 4,450,963. Albany Medical College is located in Albany, a city of 100,730 people. The University of Buffalo Medical Department is situated in Buffalo, population of 396,535. The College of Medicine, Syracuse University, is in Syracuse, a city of 125,378 inhabitants.

Albany

ALBANY MEDICAL COLLEGE, Lancaster and Jay Streets.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. The faculty is composed of 15 professors and 78 lecturers, assistants, etc., a total of 93. The curriculum covers four years of eight months each. Fees: First year, \$130; second year, \$145; third year, \$120, and fourth year, \$130. The Registrar is Dr. Willis G. Tucker. The total registration for 1909-10 was 196; graduates, 41. The eightieth session begins Sept. 20, 1910, and ends May 16, 1911.

Buffalo

UNIVERSITY OF BUFFALO MEDICAL DEPARTMENT, High Street, near Main.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 37 professors and 58 lecturers, assistants, etc., a total of 95. The course covers four years of eight months each. The total fees for the four years, respectively, are \$185, \$180, \$140 and \$140. The Dean is Dr. Matthew D. Mann, 37 Allen Street. Total registration for 1909-10 was 191; graduates, 37. The sixty-fifth session begins Sept. 26, 1910, and ends June 1, 1911.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 437 West Fifty-ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. Affiliated with Columbia College in 1814 and was permanently connected in 1860, when it became the Medical Department of Columbia College. That institution became Columbia University in 1891. The faculty is composed of 55 professors and 121 instructors, demonstrators, etc., a total of 176. Two years of collegiate work, including courses in physics, chemistry and biology are required for admission. The work covers four years of eight months each. The Dean is Dr. Samuel W. Lambert. The total fees for the first year are \$255; for the second and third, \$250, and \$275 for the fourth year. Total registration for 1909-10 was 360; graduates, 69. The 103d session begins Sept. 28, 1910, and ends June 7, 1911.

CORNELL UNIVERSITY MEDICAL COLLEGE, Ithaca, and First Avenue and Twenty-eighth Street, New York.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or New York. The faculty is composed of 53 professors and 86 assistants, lecturers, instructors, etc., a total of 139. All candidates for admission must be graduates of approved colleges or scientific schools and in addition must have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. Fees: First year, \$190; second and third, \$185 each, and \$200 for the fourth year. The Dean is Dr. William M. Polk. Total registration for 1909-10 was 164; graduates, 68. The thirteenth session begins Sept. 28, 1910, and ends June 14, 1911.

ECLECTIC MEDICAL COLLEGE OF THE CITY OF NEW YORK, 239 East Fourteenth Street.—Organized in 1865. The first class graduated in 1867. The Dean is Dr. George W. Boskowitz. Total registration for 1909-10 was 91; graduates, 13.

FORDHAM UNIVERSITY SCHOOL OF MEDICINE, Third and Pelham Avenues.—Organized in 1905. First class graduated in 1909. The faculty consists of 47 professors and 31 lecturers and assistants, a total of 78. The course of instruction covers four years of nine months each. Fees, \$200 each year. A year's work in a recognized college of liberal arts is required for admission. The Dean is Dr. James J. Walsh. The total registration for 1909-10 was 75; graduates, 6. The sixth session begins Sept. 21, 1910, and ends June 15, 1911.

LONG ISLAND COLLEGE HOSPITAL, Henry Street, near Atlantic Avenue, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 9 professors and 86 assistants, instructors, etc., a total of 95. The course covers four years of eight months each. Fees: First and second years, \$205 each; third, \$160, and \$195 for the fourth year. The Secretary is Dr. Joseph H. Raymond. Total registration, 1909-10, was 368; graduates, 72. The fifty-third session begins Oct. 1, 1910, and ends June 1, 1911.

NEW YORK HOMEOPATHIC MEDICAL COLLEGE AND HOSPITAL, Eastern Boulevard, between Sixty-third and Sixty-fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College for the State of New York. The present title was assumed in 1869. The first class graduated in 1861. The Dean is Dr. Royal S. Copeland. Total registration for 1909-10 was 125; graduates, 24.

NEW YORK MEDICAL COLLEGE AND HOSPITAL FOR WOMEN, 17-19 West One Hundred and First Street.—Organized, in 1863. The first class graduated in 1864. The Dean is Dr. Helen Cooley Palmer. The total registration for 1909-10 was 24; graduates, 4.

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE, First Avenue and Twenty-sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. The faculty is composed of 36 professors and 130 instructors, etc., in all 166. The course covers four years of eight months each. The fees are \$200 per year. The Dean is Dr. Ezbert Le Fevre. Total registration for 1909-10 was 474; graduates, 64. The next session begins Sept. 28, 1910, and ends June 1, 1911.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 307-311 Orange Street.—Organized in 1872 as the College of Physicians and Surgeons of Syracuse University. The present title was assumed in 1875. In 1872 Geneva Medical College was merged with it. The first class was graduated in 1873. The faculty is composed of 15 professors and 45 assistant professors, lecturers and instructors, in all 60. The course covers four years of eight months each. The completion of two years in an accredited college of liberal arts is required for admission. The total fees for each of the four years, respectively, are \$181, \$191, \$151 and \$166. The Dean is Dr. John L. Heffron. The total registration for 1909-10 was 140; graduates, 27. The thirty-ninth session begins Oct. 4, 1910, and ends June 14, 1911.

NORTH CAROLINA

North Carolina, population 2,142,084, has four medical schools, one of which gives only the first two years of the medical course. The Medical Department of the University of North Carolina is located at Chapel Hill, population 1,099. The Leonard School of Medicine is at Raleigh, population 14,512. The North Carolina College is at Charlotte, population 35,101. Wake Forest School of Medicine is at Wake Forest, population 823.

Chapel Hill

UNIVERSITY OF NORTH CAROLINA MEDICAL DEPARTMENT.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. The faculty is composed of 22 professors and 25 lecturers, assistants, etc., a total of 47. The total fees for the two years, respectively, are \$114 and \$116. The Dean is Dr. G. H. Manning. The total registration for 1909-10 was 74; graduates, 14. The twenty-fifth session begins Sept. 5, 1910, and ends May 30, 1911.

Charlotte

NORTH CAROLINA MEDICAL COLLEGE, Church and Sixth Streets.—Organized in 1887 at Davidson as the Davidson School of Medicine. It was a preparatory school only, not granting any degrees until 1893, when it was chartered under its present name. The first class was graduated in 1893. Removed to Charlotte in 1907. The faculty numbers 27. The course covers four years of eight months each. Fees: First three years, \$85 each, and \$100 for the fourth year. The Dean is Dr. Walter O. Nisbet. The total registration for 1909-10 was 107; graduates, 14. The next session begins Sept. 14, 1910, and ends May 1, 1911.

Raleigh

LEONARD MEDICAL SCHOOL.—Colored. This department of Shaw University was established in 1882. Classes were graduated in 1886, 1888 and in all subsequent years. It has a faculty of 12. The course covers four years of seven months each. The total fees for each year are \$15; graduation fee, \$10. The Dean is Dr. William Moncre. Total registration for 1909-10 was 133; graduates, 23. The twenty-ninth session begins Sept. 29, and ends May 11, 1911.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICINE.—This school was organized in 1902. The faculty numbers 10. It only gives the first two years of the medical course, which constitute a part of the course for the B.S. degree. Each annual course extends over nine months. The fees are \$100 each year. The Dean is Dr. John Brewer Powers. The total registration for 1909-10 was 37. The ninth session begins Sept. 6, 1910, and ends May 20, 1911.

NORTH DAKOTA

North Dakota, population 536,103, has one medical college, the College of Medicine of the State University of North Dakota, which is situated at University near Grand Forks, a city of 14,000 people.

University

UNIVERSITY OF NORTH DAKOTA COLLEGE OF MEDICINE.—Organized in 1905. The faculty is composed of 9 professors and 7 instructors, a total of 16. The course consists of two years' academic work and two years of medical college subjects, occupying nine months each year. The total fees for each of the medical years are \$50. The Dean is M. A. Brannon, A.M. The total registration for 1909-10 was 36. The sixth session begins Sept. 20, 1910, and ends June 15, 1911.

OHIO

Ohio, population 4,594,240, has six medical colleges. Two of these, the Ohio-Miami Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 351,212 inhabitants. Cleveland, population 506,938, contains two medical schools: Western Reserve Medical College and the Cleveland-Pulte Medical College. Columbus, population 155,340, contains one medical college, the Starling-Ohio Medical College. Toledo, with 174,059 people, has one medical school, the Toledo Medical College.

Cincinnati

THE OHIO-MIAMI MEDICAL COLLEGE OF THE UNIVERSITY OF CINCINNATI.—Organized in 1909 by the union of the Ohio Medical College (founded in 1819) with the Miami Medical College (founded in 1852). The Ohio Medical College became the Medical Department of the University of Cincinnati, April 26, 1896. Under a similar agreement, March 2, 1909, Miami Medical College also merged into the University when the present title was taken. The faculty consists of 53 professors, 74 associates, assistants, etc., a total of 127. The course covers four years of eight months each. The fees are a tuition fee of \$125 a year; a matriculation fee of \$5, payable but once, and a graduation fee of \$25. The Secretary is Dr. E. Otis Smith. The total registration for 1909-10 was 191; graduates, 41. The next session begins Sept. 28, 1910, and ends June 3, 1911.

ECLECTIC MEDICAL COLLEGE, 630 West Sixth Street.—Organized in 1832 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 19 professors and 6 lecturers and assistants, a total of 25. The course covers four years of thirty weeks each. The fees are \$90 for each year. The Dean is Dr. Rolla L. Thomas, 792 East McMillan Street. Total registration for 1909-10 was 91; graduates, 20. The next session begins Sept. 20, 1910, and ends May 4, 1911.

Cleveland

CLEVELAND-PULTE MEDICAL COLLEGE, Prospect Avenue and Huron Road.—Homeopathic.—Organized in 1849 as the Western College of Homeopathic Medicine. The first class graduated in 1853. In 1857 it became the Western Homeopathic College and in 1870 it became the Homeopathic Hospital College when the Homeopathic Medical College for Women, organized in 1868, merged into it. In 1894 it became the Cleveland University of Medicine and Surgery. In 1898 it merged with the Cleveland Medical College, organized in 1890, and assumed the title of Cleveland Homeopathic Medical College. In 1910 Pulte Medical College of Cincinnati merged into it and the present title was assumed. The Registrar is Dr. Joseph A. Lytle. Total number of students registered in the two schools in 1909-10 was 67; graduates, 10. The next session begins Sept. 21, 1910, and ends May 11, 1911.

WESTERN RESERVE UNIVERSITY, MEDICAL DEPARTMENT, St. Clair Avenue and East Ninth Street.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1845. It assumed the present title in 1881. In 1910 it absorbed the Cleveland College of Physicians and Surgeons. The faculty includes 41 professors and 45 lecturers, assistants, etc., a total of 96. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission to first year of medical course. The total fees are \$125 for each year. The Dean is Dr. B. L. Millikin, 1110 Euclid Avenue. The total registration for 1909-10 for the two combined schools was 192; graduates, 42. The sixty-eighth session begins Oct. 1, 1910, and ends June 15, 1911.

Columbus

STARLING-OHIO MEDICAL COLLEGE, Buttles Avenue and Park Street.—Organized in 1907 by the union of Starling Medical College (organized 1834) with the Ohio Medical University (organized 1890). The faculty consists of 35 professors and 22 lecturers, demonstrators, etc., a total of 57. The course covers four years of eight months each. Matriculation, \$5; tuition, \$125 each year. The Dean is Dr. W. J. Means. The total registration for 1909-10 was 220; graduates, 41. The next session begins Sept. 21, 1910, and ends May 24, 1911.

Toledo

TOLEDO MEDICAL COLLEGE, Cherry and Page Streets.—Organized in 1833. The first class graduated in 1833. The faculty numbers 50. The curriculum embraces four years of eight months each. The fees are \$100 for each year, with a matriculation fee of \$5, payable once. The Secretary is Dr. E. I. McKesson. The total registration for 1909-10 was 45; graduates, 9. The next session begins Oct. 3, 1910, and ends May 26, 1911.

OKLAHOMA

Oklahoma, population 1,592,401, has one medical college, the School of Medicine of the State University of Oklahoma. The work of the first and second years is given in the academic laboratories at Norman, a city of 4,000 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 45,380 and which is eighteen miles north of Norman.

Norman and Oklahoma City

STATE UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE.—Organized in 1900. Gave only the first two years of the medical course until 1910, when it absorbed the Epworth College of Medicine and established a clinical department at Oklahoma City. It has a faculty of 27 professors and 13 instructors, a total of 40. The course is four years of nine months each. An optional course of six years is offered for the degrees of B.S., and M.D. The total fees for the four years, respectively, are \$30, \$10, \$100 and \$105. The Secretary is Dr. J. D. MacLaren, Box 382, Norman. The total registration for 1909-10 was 72; graduates, 7. The eleventh session begins Sept. 14, 1910, and ends June 8, 1911.

OREGON

Oregon, population 505,339, has two medical colleges: The Medical Department of Willamette University, located at Salem, a city of 14,000 people, and the University of Oregon Medical Department, in Portland, a city of 119,007 population.

Portland

UNIVERSITY OF OREGON, MEDICAL DEPARTMENT, Lovejoy and Twenty-third Streets.—Organized in 1887. The first class graduated in 1888. It has a faculty of 15 professors and 35 lecturers, assistants, etc., a total of 50. The course is four years of thirty weeks each. Fees: First year, \$142.50; second, \$137.50; third, \$10.50, and for the fourth, \$57.50. The Dean is Dr. Simeon E. Joephi. The total registration for 1909-10 was 80; graduates, 15. The twenty-fourth session begins Sept. 12, 1910, and ends May 1, 1911.

Salem

MEDICAL DEPARTMENT WILLAMETTE UNIVERSITY.—Organized in 1865 at Salem. Classes were graduated in 1867 and in all subsequent years except 1896. It moved to Portland in 1878, but returned to Salem in 1895. The faculty numbers 20. The course is four years of eight months each. The fees for the four years, respectively, are \$122.50, \$110, \$87.50 and \$57.50. The Dean is Dr. W. H. Byrd. The total registration for 1909-10 was 35; graduates, 4. The next session begins Oct. 1, 1910, and ends June 1, 1911.

PENNSYLVANIA

Pennsylvania, population 7,241,716, has seven medical colleges. Of these Philadelphia, having a population of 1,515,756, contains six, as follows: University of Pennsylvania, Department of Medicine, Jefferson Medical College, Hahnemann Medical College, Woman's Medical College of Pennsylvania, Medico-Chirurgical College of Philadelphia and Temple University Department of Medicine. The other school, the Medical Department of the University of Pittsburg, is situated in Pittsburg, a city of 558,123 people.

Philadelphia

UNIVERSITY OF PENNSYLVANIA, DEPARTMENT OF MEDICINE, Thirty-sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-79, inclusive. The original title was the Department of Medicine, College of Philadelphia, which was changed to the present title in 1791. It granted the first medical diploma issued in America. The faculty is made up of 26 professors, 18 associate adjunct and assistant professors and 120 demonstrators, lecturers, associates, instructors, etc., a total of 164. The requirements for admission are the equivalent of work prescribed for the first two years in recognized colleges, which work must include a knowledge of physics, chemistry and general biology or zoology with laboratory work as specified by the College Entrance Examining Board and, in addition, two foreign languages, one of which must be French or German. The course embraces study of four years of nine months each. The total fees for each of the four years, respectively, are \$218, \$213, \$210 and \$211.50. The Dean is Dr. Allen J. Smith. Total registration for 1909-10 was 529; graduates, 134. The next session begins Sept. 23, 1910, and ends June 21, 1911.

JEFFERSON MEDICAL COLLEGE, Tenth and Walnut Streets.—Organized in 1825 as the Medical Department of Jefferson College, Cannonsburg. The first class graduated in 1826. The present title was assumed in 1838. It has a faculty of 25 professors and 115 lecturers, demonstrators, etc., a total of 140. The course of study covers graded work of four years of eight months each. An optional fifth year is offered. The tuition is \$180 a year, with a matriculation fee of \$5, paid but once. The Dean is Dr. James W. Holland. The total registration for 1909-10 was 531; graduates, 141. The eighty-sixth session begins Sept. 26, 1910, and ends June 5, 1911.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA, Cherry Street, between Seventeenth and Eighteenth Streets.—Organized in 1881. The first class graduated in 1882. The faculty is composed of 33 professors and 76 lecturers, assistants, etc., a total of 109. The course embraces four years of eight months each. An optional preliminary year devoted to physics, chemistry and biology is offered. Fees, \$150 per year; matriculation, \$5, payable once. The Dean is Dr. Seneca Egbert. The total registration for the college year 1909-10 was 455; graduates, 69. The thirtieth session begins Sept. 26, 1910, and ends June 3, 1911.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA. Twenty-first and N. College Avenue.—Organized in 1850. Classes were graduated in 1851 and in all subsequent years except 1861 and 1862. It has a faculty of 10 professors and 50 assistants, lecturers, etc., in all 60. The curriculum covers four years of eight months each. Fees, about

\$145 each year. The Dean is Dr. Clara Marshall. The total registration for 1909-10 was 114; graduates, 31. The 61st session begins Sept. 21, 1910, and ends May 31, 1911.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the present title. The first class graduated in 1849. It has a faculty of 28 professors and 52 lecturers, instructors, etc., in all 80. The work covers four years of eight months each. Fees: For each year, \$150; matriculation, \$5. The Dean is Dr. William B. Van Lennep. The total registration for the college year 1909-10 was 159; graduates, 37. The 63d session begins Sept. 26, 1910, and ends June 1, 1911.

THE TEMPLE UNIVERSITY, DEPARTMENT OF MEDICINE. Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 84. It gives a four-year day course. The fees are \$150 per year. The Dean is Dr. Frank C. Hammond. The total registration for 1909-10 was 197; graduates, 36. The 10th session begins Sept. 15, 1910, and ends June 3, 1911.

Pittsburg

UNIVERSITY OF PITTSBURG, MEDICAL DEPARTMENT. Brereton Avenue and Thirtieth Street.—Organized in 1886 as the Western Pennsylvania Medical College. Became the Medical Department of the University of Pittsburg in 1909. The first class graduated in 1887. The faculty is composed of 43 professors and 60 associates, assistants, etc., 103 in all. The course of study embraces four years of nine months each. The total fees are \$210 each year. The Dean is Dr. Thomas S. Arbuthnot. The total registration for 1909-10 was 309; graduates, 60. The 27th session begins Oct. 5, 1910, and ends June 15, 1911.

PHILIPPINE ISLANDS

The Philippine Archipelago, having a population of 7,635,436, has two medical colleges, the University of St. Thomas, Medical Department, and the Philippine Medical School. Both are located in the City of Manila, which in 1903 had a population of 219,928.

Manila

UNIVERSITY OF ST. THOMAS, MEDICAL DEPARTMENT.—The University was founded by a papal decree in 1587, and the medical school was added in 1771. The faculty numbers 154. The course extends over a period of six years of nine months each. The first year is a preparatory one, devoted to the teaching of physics, chemistry and biology. The degree of licenciado is conferred at the conclusion of the fifth year, and the degree of doctorado at the end of the sixth year, during which only special work is done. This last year is optional, the degree of licenciado entitling the holder to all the rights and privileges of the medical practitioner. The degree is equivalent to the English M.B. The Rector of the university is Dr. Fr. Raimundo Velasquez; the Secretary of the Medical Department is Lic. Blas C. Alcuaz. The total registration for 1908-9 was 379; graduates, 151.

PHILIPPINE MEDICAL SCHOOL.—Organized in 1907 under the support of the Philippine Commission. The faculty numbers 42. The course extends over five years of thirty-five weeks each. The requirements for admission conform to the standards in the United States and Great Britain. The Secretary is Dr. Harry T. Marshall. The total registration for 1908 was 52; graduates, 8. The third session began June 7, 1909, and ended Feb. 26, 1910.

SOUTH CAROLINA

South Carolina, population 1,510,566, has one medical college, situated in Charleston, a city of 56,573 people.

Charleston

THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA.—Founded in 1823 as the Medical College of South Carolina. In 1832 it was chartered with the present title. Classes were graduated in 1825 and in all subsequent years except 1861 to 1865 inclusive. It has a faculty of 11 professors and 22 lecturers, instructors, etc., a total of 33. The course covers four years of eight months each. The total fees for each of the first two years are \$100, and \$75 each for the last two. The Dean is Dr. Robert Wilson. Total enrolment for 1909-10 was 229; graduates, 38. The 88th session begins Oct. 1, 1910, and ends May 31, 1911.

SOUTH DAKOTA

South Dakota, population 498,077, has one medical college, the University of South Dakota, College of Medicine, located at Vermillion, a city of 2,183 people.

Vermillion

UNIVERSITY OF SOUTH DAKOTA, COLLEGE OF MEDICINE.—Organized in 1907. Offers only the first two years of the medical course. Two years work in a college of liberal arts is required for admission. The faculty numbers 9. The Dean is Christian P. Lommen. B.S. The total registration for 1909-10 was 7. The 4th session begins Sept. 12, 1910, and ends June 8, 1911.

TENNESSEE

Tennessee, population 2,248,404, has eight medical colleges. Of these Vanderbilt University Medical Department, the Medical Department of the Universities of Nashville and Tennessee and Meharry Medical College are situated in Nashville, a city

with a population of 106,476. Knoxville, population 37,738, contains two colleges, Tennessee Medical College and Knoxville Medical College. Memphis Hospital Medical College, the College of Physicians and Surgeons and the University of West Tennessee are located in Memphis, population 136,363.

Knoxville

TENNESSEE MEDICAL COLLEGE, MEDICAL DEPARTMENT OF LINCOLN MEMORIAL UNIVERSITY. Cleveland Street and Dameron Avenue.—Organized in 1889. The first class graduated in 1890. It has a faculty of 20 professors and 7 assistants, a total of 27. The curriculum covers four years of seven months each. Fees: First and second years, \$50; third and fourth years, \$60; matriculation fee, \$5; graduation fee, \$25. The total registration for 1909-10 was 98; graduates, 20. The 21st session begins Oct. 1, 1910, and ends May 3, 1911.

KNOXVILLE MEDICAL COLLEGE. Colored. Clinton and McGhee Streets. Organized in 1900. Classes were graduated in 1900 and in all subsequent years except 1906 and 1907. The Secretary is Dr. H. M. Green, Famous Building. There were 21 students and 1 graduate for the session of 1909-10.

Memphis

COLLEGE OF PHYSICIANS AND SURGEONS. Opposite City Hospital. Organized in 1906. The first class graduated in 1907. It has a faculty of 42. The course covers four years of seven and a half months each. The Dean is Dr. E. C. Ellett. The total registration for 1909-10 was 105; graduates, 17. The fifth session begins Sept. 15, 1910, and ends May 1, 1911.

MEMPHIS HOSPITAL MEDICAL COLLEGE. Marshall Avenue and Myrtle Street.—Organized in 1880. The first class graduated in 1881. It has a faculty of 12 professors and 26 lecturers, instructors, etc., a total of 38. The course covers four years of thirty weeks each. The total fees for each of the first three years are \$100; for the fourth, \$125. The Dean is Dr. W. B. Rogers. Total registration for 1909-10 was 425; graduates, 101. The 31st annual session will begin Oct. 1, 1910, and close May 18, 1911.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF WEST TENNESSEE. Colored, 1190 South Phillips Place.—Organized in 1900. The first class graduated in 1904 and a class graduates each subsequent year. It has a faculty of 16. The course is four years of seven months each. The fees are \$50 per year; graduation \$10 extra. The Dean is Dr. M. V. Lynk. Registration for 1909-10 was 35; graduates, 6. The 11th session begins Sept. 14, 1910, and ends April 14, 1911.

Nashville

VANDERBILT UNIVERSITY, MEDICAL DEPARTMENT. Elm Street and Fifth Avenue.—This school was founded in 1874. The first class graduated in 1875. The faculty consists of 23 professors and 24 lecturers, a total of 47. The course covers four years of seven and a half months each. The total fees for each of the first three years are \$125, and for the fourth year, \$150. The Dean is Dr. William L. Dudley. The total registration for 1909-10 was 271; graduates, 39. The 37th session begins Sept. 15, 1910, and ends May 1, 1911.

UNIVERSITIES OF NASHVILLE AND TENNESSEE, MEDICAL DEPARTMENT.—Organized in 1909 by the union of the University of Nashville, Medical Department (founded in 1850), with the University of Tennessee, Department of Medicine (founded in 1876). The college has a faculty of 51. The course covers four years of thirty-two weeks each. The total fees are \$125 for each of the first three years and \$150 for the fourth year. The Dean is Dr. R. O. Tucker. The total registration for 1909-10 was 203; graduates, 65. The next session begins Sept. 5, 1910, and ends May 1, 1911.

MEHARRY MEDICAL COLLEGE, Colored. Maple and Chestnut Streets.—This school was organized in 1876 and is the Medical Department of Walden University. The faculty is made up of 12 professors and 14 instructors, demonstrators, etc., 26 in all. The work embraces four years of thirty-two weeks each. The total fees for each of the four years respectively are \$56, \$59, \$57 and \$65. The Dean is Dr. G. W. Hubbard. Total registration for 1909-10 was 281; graduates, 56. The 35th session begins Sept. 14, 1910, and ends April 25, 1911.

TEXAS

Texas, population 3,780,574, has four medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 38,000 inhabitants. The Medical Department of Fort Worth University is at Fort Worth, population 68,132. The Baylor University College of Medicine and the Medical Department of Southwestern University are situated in Dallas, population 104,341.

Dallas

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 435-37 South Ervay Street.—Organized in 1900 as the University of Dallas, Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University at Waco. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty numbers 28. The course is four years of seven months each. The fees are \$100 each year; matriculation fee of \$5, paid but once; graduation fee, \$25. The Dean is Dr. E. H. Cary. Total registration for 1909-10 was 67; graduates, 9. The 11th session begins Oct. 3, 1910, and ends May 1, 1911.

SOUTHWESTERN UNIVERSITY MEDICAL COLLEGE.—Organized in 1903. The first class graduated in 1904. It has a faculty of 19 professors and 14 instructors, assistants, etc. The course of instruction covers four years of seven months each. The fees for the four years respectively are \$110, \$105, \$100 and \$125. The Dean is Dr. John O. McReynolds. Total registration for 1909-10 was 61; graduates, 17. The 8th session begins Sept. 29, 1910, and ends April 30, 1911.

Fort Worth

MEDICAL DEPARTMENT OF FORT WORTH UNIVERSITY. Calhoun and Fifth Streets.—Organized in 1894. The first class graduated in 1895. It has a faculty of 16 professors and 22 lecturers, assistants, etc., in all 38. The course covers four years of seven months each. The total fees for each of the first three years are \$105, and \$130 for the fourth year. The Dean is Dr. W. R. Thompson. The total registration for the college year 1909-10 was 81; graduates, 28. The 17th session begins Sept. 27, 1910, and ends May 13, 1911.

Galveston

UNIVERSITY OF TEXAS, DEPARTMENT OF MEDICINE. Avenue B and Ninth Street.—Organized in 1891. The first class graduated in 1892. It has a faculty of 9 professors and 14 lecturers. The curriculum embraces four years of eight months each. The entrance requires one year of collegiate work in addition to a four-year high school education. The total fees for the four years respectively are \$55, \$30, \$20 and \$5. The Dean is Dr. William S. Carter. Total registration for 1909-10 was 206; graduates, 35. The 20th session begins Oct. 1, 1910, and ends May 31, 1911.

UTAH

Utah, population 336,122, has one medical college, the Medical Department of the University of Utah, situated at Salt Lake City, which has 64,538 people.

Salt Lake City

UNIVERSITY OF UTAH, DEPARTMENT OF MEDICINE.—Organized in 1906. Gives only the first two years of the medical course. Each course covers thirty-six weeks. Two years of collegiate work are required for admission. The medical faculty consists of 6 professors and 10 lecturers and assistants, a total of 16. The fees are \$65 each year. The Acting-dean is Dr. George M. Marshall. Total registration for 1909-10 was 30. The 4th session begins Sept. 19, 1910, and ends June 3, 1911.

VERMONT

Vermont, population 353,739, has one medical school, located at Burlington, a town of 21,880 people.

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE. Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 54. The course of study covers four years of seven months each. The total fees for each of the first three years are \$135, and \$165 for the fourth year. The Secretary is Dr. James N. Jenne. The total registration for 1909-10 was 178; graduates, 30. The next session begins Nov. 14, 1910, and ends June 20, 1911.

VIRGINIA

Virginia, population 2,032,567, has three medical colleges, one, the Medical Department of the University of Virginia, situated in Charlottesville, population 6,449, and two, the Medical College of Virginia and the University College of Medicine, in Richmond, population 109,461.

Charlottesville

UNIVERSITY OF VIRGINIA, DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 15 professors and 15 lecturers, instructors, assistants, etc., a total of 30. The requirements for admission are the completion of a four years' high school course, or its equivalent, and a year of college work devoted to chemistry, physics and biology. Fees: First year, \$150; second year, \$140; third year, \$120; fourth year, \$100. The Dean is Dr. R. H. Whitehead. The total registration for 1909-10 was 87; graduates, 31. The next session begins Sept. 15, 1910, and ends June 14, 1911.

Richmond

MEDICAL COLLEGE OF VIRGINIA. Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 16 professors and 38 lecturers, instructors, etc., a total of 54. The requirement for admission is a full four-year high school education. The course embraces four years of eight months each. Fees, \$100 each year; graduation fee, \$30. The Dean is Dr. Christopher Tompkins. The total registration for the college year 1909-10 was 191; graduates, 38. The 73d session begins Sept. 13, 1910, and ends May 30, 1911.

UNIVERSITY COLLEGE OF MEDICINE. Eleventh and Clay Streets.—Organized in 1893. The first class graduated in 1894. It has a faculty of 66. Curriculum covers four years of eight months each. The total fees are \$100 for each year. The Dean is Dr. A. L. Gray. The total registration for the college year 1909-10 was 137; graduates, 22. The 18th session begins Sept. 14, 1910, and ends May 25, 1911.

WEST VIRGINIA

West Virginia, population 1,135,206, has one medical college, College of Medicine of the West Virginia University, located at Morgantown, a city of 3,900 inhabitants.

Morgantown

WEST VIRGINIA UNIVERSITY COLLEGE OF MEDICINE.—Organized in 1902. Gives only the first two years of the medical course. Each college term extends over nine months. The faculty consists of 8 professors and 5 assistants, 13 in all. Tuition to students residing in the state, \$25; for others, \$50 per year. The Dean is Dr. J. N. Simpson. The total registration for the college year 1909-10 was 27. The 9th session begins Sept. 15, 1910, and ends June 15, 1911.

WISCONSIN

Wisconsin, population 2,356,874, has three medical colleges, the Medical Department of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city having a population of 27,610, and the Milwaukee Medical College and Wisconsin College of Physicians and Surgeons, situated in Milwaukee, a city of 332,495 people.

Madison

UNIVERSITY OF WISCONSIN COLLEGE OF MEDICINE.—Organized in 1907. Gives only the first two years of the medical course. For matriculation a candidate must have had, in addition to a four-year high school course, at least two years in a college of arts and science or an equivalent training. Two years of Latin, a reading knowledge of French and German, and at least a year's work in physics, chemistry and biology are specifically required. It has a faculty of 13 professors and 6 lecturers, instructors, etc., a total of 19. The Dean is Dr. Charles R. Bardeen. The registration for 1909-10 was 48. The 3d session begins Sept. 29, 1910, and ends June 23, 1911.

Milwaukee

MILWAUKEE MEDICAL COLLEGE. MEDICAL DEPARTMENT OF MARQUETTE UNIVERSITY. Ninth and Wells Streets.—Organized in 1894. The first class graduated in 1895. It became the Medical Department of the Marquette University in 1907. It has a faculty of 30 professors and 36 lecturers, instructors, etc., a total of 66. The course covers four years of eight months each. The total fees are \$135 each for the first three years and \$150 for the fourth year. The Dean is Dr. Warren B. Hill. The total registration for 1909-10 was 293; graduates 47. The 17th session begins Oct. 4, 1910, and ends May 22, 1911.

WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS. Fourth Street and Reservoir Avenue.—Organized in 1893. The first class graduated in 1894. In 1908 it became the medical department of Carroll College. It has a faculty of 30 professors and 26 lecturers, instructors, etc., a total of 56. The curriculum includes four years of eight months each. Fees: Matriculation, paid once, \$5; general ticket, \$125. The Dean is Dr. Thomas C. Phillips. The total registration for 1909-10 was 51; graduates, 6. The 19th session begins Oct. 3, 1910, and ends May 30, 1911.

CANADA

Manitoba

MANITOBA MEDICAL COLLEGE. Winnipeg.—It is the Medical Faculty of the University of Manitoba. Organized in 1883, first class graduated in 1886 and a class graduated each subsequent year. The faculty numbers 49. The fees are \$155 for the first year and \$150 for each subsequent year. The entire course covers five years. The Dean is Dr. H. H. Chown, 263 Broadway, Winnipeg. Total registration for 1909-10 was 110; graduates, 3. The next session begins Sept. 26, 1910, and ends May 1, 1911.

Nova Scotia

HALIFAX MEDICAL COLLEGE. Medical Faculty of Dalhousie University, Halifax.—Organized 1867 as Halifax School of Medicine, united same year with Dalhousie University, separately incorporated 1876, affiliated with Dalhousie University 1885, first class graduated 1872 and a class graduated each subsequent year except 1873 and 1886. The Medical Faculty of Dalhousie University is the Examining Board for Nova Scotia and teaches only the premedical branches; Halifax Medical College teaches the medical courses, but the Medical Faculty conducts the examinations and grants the degrees. The course covers four years. The Dean is Dr. George L. Sinclair; the Secretary is Dr. A. W. H. Lindsay. The total registration for 1909-10 was 69; graduates, 9. The next session begins Aug. 25, 1910, and ends April 27, 1911.

Ontario

UNIVERSITY OF TORONTO. FACULTY OF MEDICINE, Toronto.—Organized 1843 as the Medical Faculty of King's College. Abolished in 1853. Re-established in 1887. The course of study covers five years of eight months each. In 1903 it absorbed Trinity Medical College. The Secretary is Dr. A. Primrose. The total registration for 1909-10 was 590; graduates, 125. The next session begins Sept. 27, 1910, and ends May 18, 1911.

MEDICAL FACULTY OF QUEEN'S UNIVERSITY, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the University, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became an integral part of Queen's University. The fees amount to \$100 each year; fee for M.D., C.M. degrees, \$30. The course covers five years of seven months each. The total registration in 1909-10 was 228; graduates, 30. The Dean is Dr. A. R. B. Williamson. The next session begins Sept. 28, 1910, and ends April 26, 1911.

MEDICAL DEPARTMENT OF WESTERN UNIVERSITY, London.—Organized in 1881, first class graduated in 1883 and a class graduated each year subsequently. The faculty numbers 22. The course is

five years of seven and a half months each. The Registrar is Dr. W. E. Waugh. Total registration for 1909-10 was 116; graduates, 20. The next session begins Sept. 15, 1910, and ends May 1, 1911.

Quebec

MEDICAL FACULTY OF MCGILL UNIVERSITY.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-39 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. The course extends over five years of eight months each. The faculty numbers 101. The total fees for each of the five years respectively are \$138, \$138, \$148, \$154 and \$184. The total registration for 1909-10 was 329; graduates, 79. The Registrar is Dr. John W. Scane. The next session begins Oct. 3, 1910, and ends May 20, 1911.

LAVAL UNIVERSITY, MEDICAL DEPARTMENT, Quebec and Montreal.—The Quebec School of Medicine, organized in 1848, became in 1852 Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. Department organized in Montreal in 1878. The course extends over five years. The Deans are Dr. Michael Joseph Ahern, Quebec, and Dr. E. P. Lachapelle, Montreal. Total registration at the two departments, 1909-10 was 311; graduates, 42. The next session at Quebec begins Sept. 15, 1910, and ends June 20, 1911; at Montreal the next session begins Oct. 3, 1910, and ends June 20, 1911.

FOREIGN MEDICAL COLLEGES

ARGENTINE REPUBLIC

Buenos Ayres.—Universidad Nacional de Buenos Aires.
Cordova.—Universidad Nacional.

AUSTRALIA

Adelaide.—Universidad Nacional.
Melbourne.—University of Melbourne.
Sydney.—University of Sydney.

AUSTRIA

Gratz, Styria.—Kaiserliche Königliche Karl Franzens Universität.
Innsbruck, Tyrol.—Kais. König. Leopold Franzens Universität.
Krakow, Galicia.—Uniwersytet Jagiellonski w Krakowie.
Lemberg, Galicia.—C. K. Uniwersytet Imlenia Cesarza Franciszka I.
Prague, Bohemia.—K. K. Deutsche Karl-Ferdinand-Universität.
Prague, Bohemia.—C. K. Ceská Universita Karlo-Ferdinandova.
Vienna, Nether Austria.—Kaiserliche Königliche Universität.

BELGIUM

Brussels.—Université Libre de Bruxelles.
Ghent.—Université d'Etat de Gand.
Liege.—Université de Liège.
Louvain.—Université Catholique.

BOLIVIA

La Paz.—Universidad de La Paz.
Sucre.—Universidad de Sucre.

BRAZIL

Bahia.—Faculdade de Medicina, Cirurgia e Pharmacia.
Rio de Janeiro.—Faculdade de Medicina, Cirurgia e Pharmacia.
Porto Alegre.—Faculdade Livre de Medicina e Pharmacia.

CANADA

Halifax, Nova Scotia.—Dalhousie University (including Halifax Medical College).
Kingston, Ontario.—Queen's University.
London, Ontario.—Western University.
Montreal, Quebec.—McGill University.
Montreal, Quebec.—Université Laval.
Quebec, Quebec.—Université Laval.
Toronto, Ontario.—University of Toronto.
Winnipeg, Manitoba.—University of Manitoba (Manitoba Medical College).

CHILE

Santiago.—Universidad de Chile.

CHINA

Hongkong.—Hongkong College of Medicine.
Nanking.—East China Union Medical College.
Pekin.—The Union Medical College.
Shanghai.—Woman's Medical School.

COLOMBIA

Bogota.—Universidad de Bogota.

CUBA

Havana.—Universidad de la Habana.

DENMARK

Copenhagen.—Kjobenhavns Universitet.

EGYPT

Cairo.—Kasr il Aini (School of Medicine).

ENGLAND

Birmingham.—University of Birmingham.
Bristol.—University of Bristol.
Cambridge.—University of Cambridge.
Durham.—Durham University (Durham College of Medicine).
Leeds.—University of Leeds.
Liverpool.—University of Liverpool.
London.—University of London (including the following Medical Schools: (a) St. Bartholomew's Hospital, (b) Charing Cross Hospital, (c) St. George's Hospital, (d) Guy's Hospital, (e) King's College, (f) London Hospital (g) St. Mary's Hospital, (h) Middlesex Hospital, (i) St. Thomas's Hospital, (j) University College (k) Westminster Hospital, and (l) London (Royal Free Hospital) School of Medicine for Women.

Manchester.—Victoria University (Owen's College, founded in 1851, was merged in Victoria University in 1905).
Oxford.—University of Oxford.
Sheffield.—University of Sheffield.

FRANCE

Faculties of Medicine (to the degree of doctor in medicine, including the five required examinations).
Bordeaux.—Université de Bordeaux.
Lille.—Université de Lille.
Lyons.—Université de Lyon.
Montpellier.—Université de Montpellier.
Nancy.—Université de Nancy.
Paris.—Université de Paris.
Toulouse.—Université de Toulouse.
Preparatory Schools of Medicine.—Graduates of the 16 following schools are allowed to take the first two examinations if they are presided over by some member of a medical faculty:
(a) "Full Exercise," or complete course (covering the work of 16 trimesters).
Algiers (Africa).—Académie d'Alger.
Marseilles.—Université d'Aix-Marseille.
Nantes.—Ecole de Plein Exercice de Médecine et de Pharmacie (part of the University of Rennes).
Rennes.—Université de Rennes.
(b) *Reorganized Schools.*—(Completing the first 12 trimesters.)
Amiens.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Lille).
Amiens.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Rennes).
Besancon.—Université de Besancon.
Caen.—Université de Caen.
Clermont.—Université de Clermont.
Dijon.—Université de Dijon.
Grenoble.—Université de Grenoble.
Limoges.—Ecole de Médecine et de Pharmacie (part of the University of Poitiers).
Poitiers.—Université de Poitiers.
Reims.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Paris).
Rouen.—Ecole de Médecine et de Pharmacie (part of the University of Caen).
Tours.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Poitiers).

GERMANY

Berlin, Prussia.—Königliche Friedrich-Wilhelm Universität.
Bonn, Prussia.—Rheinische Friedrich-Wilhelms-Universität.
Breslau, Prussia.—Königliche Universität.
Erlangen, Bavaria.—Königl. Friedrich-Alexanders Universität.
Freiburg, Baden.—Grossherzogliche Badische Albert-Ludwigs-Universität.
Gießen, Hesse.—Grossherzogliche Hessische Ludwigs-Universität.
Göttingen, Prussia.—Königliche Georg-August-Universität.
Greifswald, Prussia.—Königliche Universität.
Halle, Prussia.—Vereinigte Friedrichs-Universität Halle-Wittenberg.
Heidelberg, Baden.—Grossherzogliche Ruprecht-Karls-Universität.
Jena, Thuringia.—Grossherzogliche und Herzogliche Sächsische Gesamt-Universität.
Kiel, Prussia.—Königliche Christian-Albrechts-Universität.
Königsberg, Prussia.—Königliche Albertus-Universität.
Leipzig, Saxony.—Universität.
Munich, Bavaria.—Königliche Bayr. Ludwig-Maximilians-Universität.
Rostock, Mecklenburg.—Universität.
Strassburg, Alsace-Lorraine.—Kaiser-Wilhelms-Universität.
Tübingen, Württemberg.—Königliche Eberhard-Karls-Universität.
Würzburg, Bavaria.—Königliche Julius-Maximilians-Universität.

GREECE

Athens.—National University.

GUATEMALA

Guatemala.—Facultad de Medicina.

HAITI

Port au Prince.—L'Ecole Nationale de Medecine.

HONDURAS

Tegucigalpa.—Facultad de Medicina.

HUNGARY

Budapest.—Budapesti Királyi Magyar Tudomány-Egyetem (Royal Hungarian University).
Klausenburg.—Kolozsvári Magyar Királyi Ferencz-Jozsef Tudomány-Egyetem (Royal Hungarian Franz-Joseph University).

ICELAND

Reykjavik.—Loeknaskoll (School of Physicians).

INDIA

Bombay.—University of Bombay (Grant Medical College).
Calcutta.—University of Calcutta (Medical College of Bengal).
Lahore.—Panjab University (Lahore Medical College).
Madras.—University of Madras (Madras Medical College).

IRELAND

Belfast.—Queen's University.
Dublin.—National University of Ireland (including Catholic School of Medicine, Dublin; University College, Cork; University College, Galway).
Dublin.—University of Dublin (The School of Physic in Ireland, Trinity College).
Dublin.—Royal College of Surgeons. Schools of Surgery (including the Carmichael College of Medicine and the Ledwich School of Medicine).

ITALY

Bologna.—Regia Università degli Studi.
Cagliari, Sardinia.—Università degli Studi.
Camerino.—Libera Università degli Studi.
Catania.—Regia Università degli Studi di Catania.

Ferrara.—Libera Università degli Studi di Ferrara.
Florence.—Regia Istituto di Studi Superiori, Pratici e di Perfezionamento.
Genoa.—Regia Università degli Studi.
Messina.—Regia Università degli Studi.
Modena.—Regia Università degli Studi.
Naples.—Regia Università degli Studi.
Padua.—Regia Università degli Studi.
Palermo.—Regia Università degli Studi.
Parma.—Regia Università degli Studi.
Pavia.—Regia Università degli Studi.
Perugia.—Università Libera degli Studi.
Pisa.—Regia Università degli Studi.
Rome.—Regia Università degli Studi.
Sassari.—Regia Università degli Studi.
Siena.—Regia Università degli Studi.
Turin.—Regia Università degli Studi.

JAPAN

Kyoto.—Imperial University (part of medical school is located at Fukuoka).
Tamsui, Formosa.—Medical School of Formosa.
Tokyo.—Imperial University (Tokio Medical College became Medical Department in 1877).
Medical schools are located also at Chiba, Sendai, Okayama, Kanazawa and Nagasaki.

MEXICO

Mexico.—Escuela de Medicina.

NETHERLANDS

Amsterdam.—Universiteit van Amsterdam.
Groningen.—Rijks-Universiteit te Groningen.
Leyden.—Rijks-Universiteit.
Utrecht.—Rijks-Universiteit.

NEW ZEALAND

Wellington.—University of New Zealand (affiliated with the University of Cambridge, England).

NORWAY

Christiania.—Kongelige Frederiks Universitet.

PERU

Lima.—Universidad Mayor de San Marcos.

PORTUGAL

Coimbra.—Universidade de Coimbra.
Lisbon.—Escola Medico-Cirurgica.
Oporto.—Escola Medico-Cirurgica.

ROUMANIA

Bukharest.—Universitatea din Bucuresti.
Jassy.—Universitatea din Jasi.

RUSSIA

Alexanders Universitet.
ratorskij Jurjevskij Universitet.
J Universitet.
Kharkof.—Imperatorskij Charkovskij Universitet.
Kief.—Imperatorskij Universitet Sv. Vladimira.
Moscow.—Imperatorskij Moskovskij Universitet.
Odessa.—Imperatorskij Novorossijskij Universitet.
St. Petersburg.—Vojenno-Medicinskaja Akademija (Military Medical Academy).
St. Petersburg.—Zenskij Medicinskij Institut (Medical High School for Women).
Tomsk, Siberia.—Tomskij Universitet.
Warsaw.—Imperatorskij Varsavskij Universitet.

SCOTLAND

Aberdeen.—University of Aberdeen.
Dundee.—University of St. Andrews (University College).
Edinburgh.—University of Edinburgh.
Edinburgh.—School of Medicine of the Royal Colleges (including the Surgeons' Hall School).
Glasgow.—University of Glasgow (including Queen Margaret College).
Glasgow.—Anderson's College Medical School.
Glasgow.—St. Mungo's College and Glasgow Royal Infirmary.
Glasgow.—Western Medical School.

SPAIN

Barcelona.—Universidad de Barcelona.
Cadiz.—Facultad de Medicina.
Granada.—Universidad de Granada.
Madrid.—Universidad de Central de Espana.
Santiago.—Universidad.
Saragossa.—Universidad.
Seville.—Universidad de Sevilla. (To this university also belongs the Medical Faculty at Cadiz.)
Valencia.—Universidad Literaria.
Valladolid.—Universidad.

SWEDEN

Lund.—Kungl. Karolinska Universitetet.
Stockholm.—Karolinska Institutet (Medico-Chirurgical Institute). (This institute has the same chancellor as the universities at Lund and Upsala, and is guided by a similar constitution.)
Upsala.—Kungl. Universitetet i Upsala.

SWITZERLAND

Basel.—Universität.
Berne.—Kantonale Universität.
Fribourg.—Universität.
Geneva.—Université de Genève.
Lausanne.—Université.
Neuchâtel.—Universität.
Zurich.—Universität.

SYRIA

Beirut.—Syrian Protestant College.
Beirut.—Université Saint Joseph de Beyrouth.

TURKEY

Constantinople.—University of Constantinople.
(Another medical department of this university is located at Damascus).

URUGUAY

Montevideo.—Universidad.

WALES

Cardiff.—University of Wales (Cardiff School of Medicine).

EDUCATIONAL STANDARDS ABROAD

The educational standards in foreign countries regarding which definite information has been obtained are briefly stated as follows:

ARGENTINE REPUBLIC.—Elementary education extends between the ages of 6 and 14, and secondary education between the ages of 12 and 18, thereby overlapping the elementary by two years. Twelve years of study, therefore, lead to the medical course, which covers six years, including preliminary work in physics, chemistry and biology. The complete course requires 18 years and the minimum age at completion of the course is 24.

AUSTRIA.—Elementary education extends between the ages of 6 and 14, overlapping the gymnasium course by four years, the latter extending between the ages of 10 and 18. Twelve years of study, therefore, admit to medicine. The medical course covers six years and includes preliminary courses in physics, chemistry and biology. The total time required is 18 years and the minimum age at completion is 24.

BELGIUM.—Elementary education extends between the ages of 6 and 14, overlapping the work in the Royal Athénées, the secondary schools, by three years, the latter extending between the ages of 11 and 18. The time spent in the primary and secondary schools is, therefore, 12 years. An additional year devoted to physics, chemistry and biology in a college of science admits to the five-year medical course. The time necessary to complete the work is 18 years and the minimum age at completion is 24.

BOLIVIA.—Elementary education extends between the ages of 6 and 14, and secondary education between the ages of 12 and 18, thereby overlapping the elementary by two years. Twelve years of study, therefore, lead to the medical course, which covers six years, including preliminary work in physics, chemistry and biology. The complete course requires 18 years and the minimum age at the completion of the course is 24.

BRAZIL.—Elementary education extends between the ages of 7 and 15, overlapping the work of the gymnasium by three years, the latter extending between the ages of 12 and 19. Elementary work may be begun at the age of 6 years, and in such cases students may finish the gymnasium at 18. Twelve years of work lead to medicine, where six years of work are required, including preliminary courses in physics, chemistry and biology. The time required to complete the entire course is 18 years and the usual age at completion is 25.

CHILE.—Elementary education extends between the ages of 6 and 14 years, leading to the secondary, which extends from the 14th to the 18th year. A six-year medical course follows, which includes preliminary work in physics, chemistry and biology. The time to complete the entire work is 18 years and the minimum age at completion is 24.

COLOMBIA.—Elementary education extends between the ages of 6 and 14, and secondary education between the ages of 12 and 18, thereby overlapping the elementary by two years. Twelve years of study, therefore, lead to the medical course, which covers six years, including preliminary work in physics, chemistry and biology. The complete course requires at least 18 years and the minimum age at the completion of the course is 24.

DENMARK.—Elementary education extends between the ages of 6 and 12, leading to the "laerdeskoler," the secondary schools, which extend between the ages of 12 and 18, a total of 12 years. The medical course covers six years, including preliminary courses in the natural sciences. Time to complete the work is 18 years and the minimum age at completion is 24.

FRANCE.—Elementary education extends between the ages of 6 and 13 or 14. The majority of students entering the second-

ary schools, however, obtain their elementary work from tutors or in special preparatory courses connected with the lycées. The secondary school, the lycée, has a nine-year course divided into two cycles of five and four years, respectively, and extends between the ages of 11 and 18. From age 6, therefore, twelve years of training are required to complete the primary and secondary work. An additional year devoted to the natural sciences, which must be taken in a college of science, admits to the four-year medical course. Entire course, therefore, is 17 years, and the age at completion is 23.

GERMANY.—Elementary study extends between the ages of 6 and 14, overlapping the gymnasium by four years, the latter extending between the ages of 10 and 18. Then follows a six-year course, which includes preliminary courses in the natural sciences, and the last year must be spent in hospital work. This gives the right to practice, but additional work is required, and a severe examination, the "examen rigorosum," must be passed to secure the degree of doctor. Eighteen years of work lead to medical practice or 19 to the Doctorate and the age at completion is at least 24 or 25.

GREAT BRITAIN.—There appears to be no connection between elementary and secondary systems of education. Elementary public schools have been provided, extending between the ages of 6 and 12 or 15. Those entering secondary schools usually obtain their elementary instruction from private tutors or in the preparatory courses of the secondary schools. At present there are no public secondary schools in Great Britain, although that country abounds in private secondary schools, having courses varying as to age. Taking Rugby as an example, the course extends from the age of 10 to 17. Others extend from the age of 12 to 19. There are various ages at which the student may enter the medical schools, the minimum age fixed by the General Medical Council being 16. The time spent in elementary and secondary education, therefore, ranges from 10 to 13 years. Work must then be taken in physics, chemistry and biology either in a college of science or in the medical college as a part of the regular five-year medical course. Authorities agree that only a small proportion of students enter the medical school before the 18th year and few graduate in medicine before the age of 23. Since the promotion from one grade to another depends entirely on the passing of an examination, the time to complete the medical course usually requires six or more years.

GREECE.—Elementary education is given in the "demotic" schools between the ages of 6 and 10 and in the "hellenic" schools between the ages of 10 and 14, leading to the secondary schools or gymnasia, which occupy the time between the ages of 14 and 18. Twelve years are occupied, therefore, by elementary and secondary education. Two years of work in the university devoted to botany, chemistry, physics, mineralogy, geology and zoology must be completed in order to begin the four-year medical course for the degree of Doctor. To secure the right to practice, nine months of postgraduate work in a hospital must be completed. The total time requirement is 19 years and the minimum age at completion of the entire course is 25.

HUNGARY.—Elementary education extends between the ages of 6 and 12 years, overlapping secondary education, which extends between the ages of 10 and 18. The 12 years' work thus completed leads to the five-year medical course, which includes preliminary work in physics, chemistry and biology. The time for the entire course is, therefore, 17 years, and the minimum age at completion is 23.

ITALY.—Elementary education is divided into lower elementary, extending between the ages of 6 and 9 years, and higher elementary, extending between 9 and 12 years. Secondary education is given in the ginnasio, extending between the ages of 10 and 15 years, and in the liceo, which extends between the ages of 15 and 18 years. This is followed by a six-year course in medicine, which includes work in the natural sciences. The complete course, therefore, is elementary study 4 years, ginnasio 5 years, liceo 3 years and medicine 6 years, a total of 18 years. The minimum age at completion of the course is 24 years.

JAPAN.—Ordinary elementary education extends between the ages of 6 and 10 years and higher elementary education is between the ages of 10 and 14 years, overlapping the work of the "middle school" by two years, the latter extending between the ages of 12 and 17 years. Completing the work of the middle school admits to the four-year medical course in all medical schools, except those at Tokio, Kioto and Fukuoka, which require also the completion of three years of higher preliminary education.

NETHERLANDS.—Elementary education extends between the ages of 6 and 12 years, leading to the gymnasium, which extends from the 12th to the 18th year. Admission is then secured to the six-year medical course, which includes work in the natural sciences. The time to complete the entire course is 18 years and the minimum age is 24.

NORWAY.—Elementary education extends between the ages of 6 and 12 years, overlapping the secondary, which extends between the ages of 9 and 18 years. Secondary education is divided into a six-year middle school and a three-year gymnasium. The completion of the course of the gymnasium admits to the six-year medical course, which includes work in physics, chemistry and biology. The entire time, therefore, is 18 years and the minimum age at completion is 24. This gives the right to practice with the title of physician. The degree of Doctor requires extra work and the passing of special examinations.

PERU.—Elementary education extends between the ages of 6 and 14, and secondary education between the ages of 12 and 18, thereby overlapping the elementary by two years. Twelve years of study, therefore, lead to the medical course, which covers six years, including preliminary work in physics, chemistry and biology. The complete course requires 18 years and the minimum age at the completion of the course is 24.

PORTUGAL.—Elementary education extends between the ages of 6 and 12 years, thus overlapping the work of the lyceum, which extends between the ages of 9 and 16. This is followed by a course of one or two years in a faculty of philosophy and mathematics and then five years in medicine for the degree of licentiate in medicine and a sixth year for the degree of Doctor. The time for the entire course, therefore, is 18 years and the minimum age at completion is 24.

RUSSIA.—Elementary education extends for 3 years between the ages of 7 and 10. Secondary education, as given in the gymnasium, extends over 8 years between the ages of 11 and 19. Completion of the secondary work admits to the five-year medical course, which includes preliminary work in the natural sciences extending through the first two years along with other subjects. The total time is 16 years and the minimum age at completion is 24.

SPAIN.—Elementary education extends between the ages of 6 and 14 years, overlapping the work of the gymnasium, the secondary schools, which conduct work between the ages of 10 and 17. After completing the work of the gymnasium one year of "preliminary study" must be taken, devoted to chemistry and natural science. Six years more gives the degree of licentiate in medicine and one more that of doctor. The complete course, therefore, requires 18 years of study and the minimum age at completion is 24.

SWEDEN.—Elementary education extends over 7 years between the ages of 6 and 13. Secondary education consists of a five-year lower modern course and a four-year higher gymnasium, the two courses being attended by students between the ages of 9 and 18. After completing the gymnasium one year of preliminary work in the natural sciences must be taken in a college of philosophy. Seven years more of study gives the degree of licentiate in medicine, which carries with it the right to practice. To secure the degree of Doctor requires more work and the passing of special examinations. Promotion to each succeeding grade depends on the passing of an examination, and the medical course often extends to 9 or more years. The entire course, therefore, includes: elementary work, 3 years; lower modern school, 5 years; higher gymnasium, 4 years; college of philosophy, 1 year, and medicine, 7 years, a total of 20 years. The age at completion is 26 to 28 years.

SWITZERLAND.—The Cantons differ somewhat in the length of their secondary courses, but all agree in regard to the preliminary work for admission to medicine and the length of the medical course. Taking the Canton of Zürich as an example, the elementary work extends over 6 years between the ages of 6 and 12. The secondary schools, known as gymnasia (real-schulen or lycea), have courses covering seven years, students attending between the ages of 11 and 18. Graduation from the gymnasium admits to the five-year medical course, which includes preliminary courses in physics, chemistry and biology. The entire course, therefore, requires: elementary work, 5 years; gymnasium, 7 years, and medicine, 5 years, a total of 17 years. The minimum age at completion is 23. The degree of Doctor is not essential to practice, but may be obtained by writing special thesis and taking certain courses without necessarily requiring a longer course.

TURKEY.—Elementary education extends from the age of 6 to 10 years inclusive, intermediate education from 10 to 14, secondary education from 14 to 17 years and the medical education from 17 to 23. The total number of years, therefore, is 17 years and the minimum age at completion is 23. The sixth year of the medical course must be spent in a hospital.

URUGUAY.—Elementary education extends between the ages of 6 and 14 years, leading to the secondary, which extends from the 14th to the 18th year. A six-year medical course follows, which includes preliminary work in physics, chemistry and biology. The time to complete the entire work is 18 years and the minimum age at completion is 24.

MEDICAL COLLEGES OF THE WORLD

Nation.	Colleges.	Nation.	Colleges.
Argentina	2	Iceland	1
Australia	3	India	4
Austria	7	Ireland	4
Belgium	4	Italy	20
Bolivia	2	Japan	8
Brazil	3	Mexico	1
Canada	8	Netherlands	4
Chile	1	New Zealand	1
China	4	Norway	1
Colombia	1	Peru	1
Cuba	1	Portugal	2
Denmark	1	Roumania	2
Egypt	1	Russia	11
England	21	Scotland	8
France	7	Spain	9
Germany	20	Sweden	2
Greece	1	Switzerland	7
Guatemala	1	Syria	2
Haiti	1	Turkey	1
Honduras	1	Uruguay	1
Hungary	2	Wales	1

Total medical colleges in all foreign countries..... 185
Total in the United States alone..... 133

Counting also the 20 sectarian schools, the graduates of which treat diseases, gives the United States a total of 153.

MEDICAL STANDARDS ABROAD COMPARED

The list of foreign medical colleges, on pages 676 to 678, shows a total of 185 such colleges outside the United States, while this country alone has 133. All European medical schools are medical faculties of universities or are under the direct control of universities, and there are no proprietary schools such as predominate in this country.

The information given regarding preliminary education as well as collegiate and medical was obtained from original sources and from foreign publications and has been verified in most instances by the American consuls in the different countries.

The requirements in twenty foreign countries are graphically presented in the accompanying chart, where each division of education is shown according to the ages at which students are in attendance. The shaded portions of the bands represent primary and secondary education, the black portions the medical, and the white portions represent the requirements of higher preliminary education, including work in physics, chemistry and biology. The chart allows valuable comparisons to be

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES

Number.	NAME AND LOCATION OF COLLEGE	Population of city where college is located. (Census Bureau's estimate for 1909.)	No. of students registered 1909-10.		Graduates 1910.		No. of teachers.	Grads. with A.B. or U.S.	Weeks in college year.	Total fees. (Dollars.)				Executive Officer.	Session of 1910-11.		Number
			Men.	Women.	Men.	Women.				1st year.	2nd year.	3rd year.	4th year.		Begins 1910.	Ends 1911.	
1	ALABAMA Birmingham Medical College, Birmingham.....	40,553	337	1	63	0	2	34	30	100	100	100	125	B. L. Wyman, M.D., Dean.....	Sept. 28	May 16	1
2	University of Alabama, Medical Department, Mobile.....	45,122	208	1	23	0	2	25	30	100	100	100	125	Rhett Goode, M.D., Dean.....	Sept. 19	May 9	2
3	ARKANSAS College of Physicians and Surgeons, Little Rock.....	43,688	103	1	55	0	1	40	28	100	100	100	125	J. P. Runyan, M.D., Dean.....	Oct. 1	May 1	3
4	University of Arkansas, Medical Department, Little Rock.....	43,688	171	37	26	0	1	38	31	100	100	100	125	C. E. Witt, M.D., Secretary.....	Sept. 15	May 6	4
5	CALIFORNIA College of Physicians and Surgeons, San Francisco.....	400,000	349	37	59	5	10	60	36	150	150	150	150	Ethan H. Smith, M.D., Dean.....	Sept. 1	June 1	5
6	Cooper Medical College, San Francisco (n).....	400,000	79	1	17	0	1	51	34	155	100	100	185	Henry Gibbons, Jr., M.D., Dean.....	Aug. 15	May 5	6
7	Rush Medical College of the Pacific, San Francisco.....	400,000	82	2	1	0	1	51	34	155	100	100	185	James W. Ward, M.D., Dean.....	Aug. 11	May 27	7
8	University of California, Medical Department, San Francisco.....	1,658	11	4	3	1	3	23	26	175	175	175	175	Ernest Rixford, M.D., Secretary.....	Aug. 25	April 22	8
9	Leland Stanford Junior University, Dept. of Medicine, Palo Alto.....	400,000	41	11	6	3	2	23	36	150	150	150	150	Arnold A. D'Ancona, M.D., Dean.....	Aug. 22	May 17	9
10	University of California, Medical Department, Los Angeles.....	300,000	47	8	6	3	2	61	34	150	150	150	150	W. Jarvis Barlow, M.D., Dean.....	Sept. 15	May 31	10
11	California Eclectic Medical College, Los Angeles.....	300,000	64	5	11	2	2	31	32	125	125	125	125	J. A. Munk, M.D., Dean.....	Sept. 19	May 18	11
12	College of Physicians and Surgeons, Los Angeles.....	300,000	22	1	3	0	2	44	36	150	150	150	150	Charles W. Bryson, M.D., Dean.....	Sept. 14	June 15	12
13	Oakland College of Medicine and Surgery, Oakland.....	225,000	19	1	3	0	2	33	36	210	200	150	150	Edward N. Ever, M.D., Registrar.....	Aug. 15	May 20	13
14	College of Medical Evangelists, Loma Linda (n).....	100	7	3	28	1	8	9	36	103	100	100	100	George Knapp Abbott, M.D., Dean.....	Sept. 29	June 27	14
15	COLORADO Denver and Gross College of Medicine, Denver (b).....	156,726	110	7	21	1	6	65	35	75	75	75	75	Frost C. Buchtel, M.D., Secretary.....	Sept. 12	June 7	15
16	University of Colorado, School of Medicine, Boulder (b).....	12,000	72	5	7	1	6	43	35	75	75	75	75	William P. Harlow, M.D., Dean.....	Sept. 12	June 7	16
17	Yale Medical School, New Haven.....	127,827	124	27	70	0	13	66	35	173	153	150	160	George Blumer, M.D., Dean.....	Sept. 29	June 21	17
18	DISTRICT OF COLUMBIA George Washington University, Dept. of Medicine, Washington.....	343,003	427	9	26	0	5	81	33	150	150	150	150	W. C. Borden, M.D., Dean.....	Sept. 28	June 11	18
19	Georgetown University, School of Medicine, Washington.....	343,003	117	14	26	0	5	74	33	150	150	150	150	George M. Kober, M.D., Dean.....	Sept. 26	June 11	19
20	Howard University, Medical Department, Washington.....	343,003	206	4	30	0	8	48	31	102	102	102	102	Edward A. Bulloch, M.D., Dean.....	Oct. 1	May 25	20
21	GEORGIA Atlanta College of Physicians and Surgeons, Atlanta.....	111,825	801	6	165	3	9	55	29	100	100	100	100	W. S. Elkin, M.D., Dean.....	Sept. 21	May 2	21
22	Atlanta School of Eclectic Medicine and Surgery, Atlanta.....	111,825	227	1	63	0	4	40	23	75	75	75	75	Edward G. Jones, M.D., Proctor.....	Sept. 20	April 21	22
23	Georgia College of Eclectic Medicine and Surgery, Atlanta.....	111,825	89	1	34	1	3	40	23	80	80	80	80	E. B. Thomas, M.D., Dean.....	Sept. 20	April 21	23
24	Hospital Medical College, Atlanta.....	111,825	38	5	13	2	2	24	26	80	80	80	80	W. Bernard Lingo, M.D., Dean.....	Sept. 15	April 1	24
25	Medical College of Georgia, Augusta.....	44,967	113	13	13	13	2	34	25	100	100	100	100	William H. Dougherty, Jr., M.D., Dean.....	Oct. 1	May 1	25
26	ILLINOIS American Medical Missionary College, Chicago.....	2,224,491	2760	331	564	37	133	33	35	182	175	175	175	Benton N. Colver, M.D., Dean, Battle Creek Mich.....	Sept. 13	June 9	26
27	Bennett Medical College, Chicago (c).....	2,224,491	215	16	32	0	3	33	33	125	125	125	125	William F. Waugh, M.D., Dean.....	Sept. 20	June 15	27
28	Chicago College of Medicine and Surgery.....	2,224,491	549	31	85	4	11	73	31	125	125	125	125	G. E. Wyneken, M.D., Registrar.....	Sept. 27	May 15	28
29	College of Physicians and Surgeons, Chicago.....	2,224,491	499	27	121	10	17	150	33	155	155	155	155	William F. Quinn, M.D., Dean.....	Sept. 27	June 7	29
30	College of Medicine and Surgery, Chicago—Ph.M.....	2,224,491	45	12	14	2	5	61	30	120	115	115	115	William F. Schuare, M.D., Secretary.....	Sept. 21	May 12	30
31	Hahnemann Medical College and Hospital, Chicago.....	2,224,491	122	9	28	2	2	52	32	100	100	100	100	W. Henry Wilson, M.D., Registrar.....	Sept. 25	May 25	31
32	Hering Medical College, Chicago—H.....	2,224,491	32	10	10	2	2	64	40	125	110	110	110	Robert N. Morris, M.D., Dean.....	Sept. 27	June 1	32
33	Illinois Medical College, Chicago.....	2,224,491	50	5	17	2	2	64	40	125	110	110	110	John D. Mackellar, M.D., Dean.....	Aug. 29	July 1	33
34	Jenner Medical College, Chicago.....	2,224,491	186	10	20	3	0	163	31	190	200	192	185	Arthur R. Edwards, M.D., Dean.....	Oct. 4	May 29	34
35	Northwestern University Medical School, Chicago.....	2,224,491	485	152	142	0	21	65	39	130	130	130	130	J. F. Burkholder, M.D., President.....	Sept. 7	June 29	35
36	Reliance Medical College.....	2,224,491	80	11	6	1	72	269	34	180	180	180	180	John M. Dodson, M.D., Dean.....	Oct. 1	June 17	36
37	Rush Medical College, Chicago.....	2,224,491	450	18	81	4	13	163	35	100	100	100	100	B. D. Myers, Secretary, Indianapolis, Ed- mund D. Clark, M.D., Indianapolis.....	Sept. 22	June 16	37
38	INDIANA Indiana University, School of Medicine, Indianapolis.....	241,656	239	9	56	3	13	50	35	150	150	150	150	William W. Pearson, M.D., Dean.....	Sept. 19	June 14	38
39	Drake University, College of Medicine, Des Moines.....	86,415	90	9	21	2	2	50	35	50	50	50	50	James R. Guthrie, M.D., Dean, Dubuque.....	Sept. 19	June 14	39
40	State University of Iowa, College of Medicine, Iowa City.....	8,197	180	10	43	1	10	40	35	50	50	50	50	George Royal, M.D., Dean.....	Sept. 19	June 14	40
41	State Univ. of Iowa, Coll. of Homoeopathic Med., Iowa City—H.....	8,197	33	2	7	0	1	30	35	50	50	50	50	George Royal, M.D., Dean.....	Sept. 19	June 14	41
42	KANSAS Kansas Medical College, Topeka.....	44,757	145	10	31	1	5	44	35	75	75	75	75	William F. McVey, M.D., Dean.....	Sept. 14	June 7	42
43	University of Kansas, School of Medicine, Kansas City (d) (i).....	277,427	64	3	12	0	3	87	34	25	100	100	110	Mervin T. Studer, M.D., Dean, Lawrence; George H. Hoxie, M.D., Dean, Rosedale.....	Sept. 19	June 7	43
44	KENTUCKY Louisville National Medical College, Louisville.....	236,688	666	2	212	0	0	23	31	60	55	55	55	E. S. Porter, M.D., Dean.....	Oct. 1	May 20	44
45	Southwestern Homeopathic College, Louisville.....	236,688	30	1	8	0	0	27	31	80	80	80	80	Thomas C. Evans, M.D., Dean.....	Oct. 6	May 25	45
46	University of Louisville, Medical Department, Louisville.....	236,688	624	1	202	0	0	29	20	105	105	105	105	Thomas C. Evans, M.D., Dean.....	Oct. 10	May 19	46
47	PLANT MEDICAL COLLEGE, NEW ORLEANS.....	327,662	435	1	191	0	21	15	29	60	56	56	56	R. T. Fuller, M.D., Dean.....	Sept. 29	May 9	47
48	Tulane University Medical Department, New Orleans.....	327,662	416	1	103	0	20	88	32	150	150	150	150	Isadore Dyer, M.D., Dean.....	Oct. 1	June 1	48
49	MAINE Medical School of Maine, Portland.....	57,675	74	...	20	...	8	37	33	100	100	100	100	Alfred Mitchell, M.D., Dean.....	Oct. 13	June 21	49

50	Atlantic Medical College, Baltimore.	1305	39	323	10	76	40	32	105	100	50	105	Elbridge C. Price, M.D., Dean.	Oct. 1	June 1	50
51	Baltimore Medical College, Baltimore.	270	11	61	1	2	71	32	125	125	125	155	David Street, M.D., Dean.	Sept. 20	June 27	51
52	Baltimore Medical College, Baltimore.	283	61	61	1	58	32	125	155	155	155	185	Charles F. Bevan, M.D., Dean.	Oct. 1	June 13	52
53	College of Physicians and Surgeons, Baltimore.	576,023	22	68	4	72	112	32	200	200	200	200	William H. Howell, M.D., Dean.	Oct. 1	June 31	53
54	Johns Hopkins University, Medical Department, Baltimore.	576,023	22	68	4	72	112	32	200	200	200	200	William H. Howell, M.D., Dean.	Oct. 1	June 31	54
55	Maryland Medical College, Baltimore.	576,023	22	68	4	72	112	32	200	200	200	200	William H. Howell, M.D., Dean.	Oct. 1	June 31	55
56	University of Maryland, School of Medicine, Baltimore.	576,023	22	68	4	72	112	32	200	200	200	200	William H. Howell, M.D., Dean.	Oct. 1	June 31	56
57	Woman's Medical College of Baltimore (c).	576,023	22	68	4	72	112	32	200	200	200	200	William H. Howell, M.D., Dean.	Oct. 1	June 31	57
58	Massachusetts College of Medicine, Boston.	602	17	13	6	66	66	32	125	125	125	125	John P. Sutherland, M.D., Dean.	Oct. 6	June 7	58
59	College of Physicians and Surgeons, Boston (c).	622,970	28	8	3	60	60	32	125	125	125	125	Thomas D. Crothers.	Sept. 21	June 11	59
60	Harvard Medical School, Boston.	622,970	28	8	3	60	60	32	125	125	125	125	Henry A. Christian, M.D., Dean.	Sept. 21	June 11	60
61	Tufts College Medical School, Boston.	622,970	28	8	3	60	60	32	125	125	125	125	Frederic M. Briggs, M.D., Secretary.	Sept. 28	June 1	61
62	Detroit College of Medicine, Detroit.	381,855	12	3	2	26	113	32	115	120	140	140	F. W. Walker, M.D., Secretary.	Sept. 21	May 25	62
63	Detroit Homeopathic College, Detroit.	381,855	12	3	2	26	113	32	115	120	140	140	F. W. Walker, M.D., Secretary.	Sept. 21	May 25	63
64	University of Michigan, Dept. of Med. and Surg., Ann Arbor (c).	14,711	10	6	2	24	74	32	105	95	55	55	Victor O. Vaughan, M.D., Dean.	Oct. 4	June 29	64
65	University of Michigan, Homeopathic College, Ann Arbor.	14,711	10	6	2	24	74	32	105	95	55	55	Victor O. Vaughan, M.D., Dean.	Oct. 4	June 29	65
66	University of Minnesota, Coll. of Med. and Surg., Minneapolis (h).	533,567	16	3	1	16	128	35	150	100	100	100	F. F. Westbrook, M.D., Dean.	Sept. 13	June 8	66
67	Hamline University, Medical Department, Minneapolis (p).	533,567	16	3	1	16	128	35	150	100	100	100	F. F. Westbrook, M.D., Dean.	Sept. 13	June 8	67
68	University of Mississippi, Medical Department, Oxford.	1,825	50	3	1	1	13	32	75	75	75	75	W. S. Leathers, M.D., Dean.	Sept. 23	June 1	68
69	Mississippi Medical College, Meridian.	21,937	23	3	1	22	25	32	85	85	100	100	W. W. Hamilton, M.D., Secretary.	Oct. 3	April 30	69
70	University of Missouri, Medical Department, Columbia.	5,651	29	8	2	18	43	33	103	70	100	100	C. M. Jackson, M.D., Dean.	Sept. 22	June 8	70
71	Kansas City Hahnemann Medical College, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	71
72	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	72
73	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	73
74	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	74
75	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	75
76	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	76
77	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	77
78	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	78
79	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	79
80	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	80
81	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	81
82	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	82
83	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	83
84	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	84
85	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	85
86	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	86
87	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	87
88	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	88
89	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	89
90	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	90
91	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	91
92	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	92
93	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	93
94	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	94
95	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	95
96	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	96
97	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	97
98	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	98
99	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	99
100	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	100
101	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	101
102	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	102
103	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	103
104	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	104
105	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	105
106	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	106
107	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	107
108	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	108
109	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	109
110	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	110
111	Eclectic Medical University, Kansas City.	277,427	186	48	2	43	33	103	100	100	100	100	William F. Crumpler, M.D., Dean.	Sept. 6	May 15	111

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES.—(Concluded)

Number.	NAME AND LOCATION OF COLLEGE	Population of city where college is located (Census Bureau's estimate for 1909).	No. of students registered 1909-10.		Graduates 1910.		Grads. with A.B. or B.S.	No. of teachers.	Weeks in college year.	Total fees. (Dollars.)			Executive Officer.		Session of 1910-11.		Number
			Men.	Women.	Men.	Women.				1st year.	2nd year.	3rd year.	4th year.		Begins 1910.	Ends 1911.	
1	Birmingham		2157	137	470	38	61	80	32	155	150	150	150	William B. Van Lennep, M.D., Dean.	Sept. 26	June 1	112
2	University of Pennsylvania	1,515,756	150	531	141	18	18	140	33	150	150	150	150	James W. Holland, M.D., Dean.	Sept. 26	June 5	113
3	University of Michigan	1,515,756	455	14	69	3	109	33	33	150	150	150	150	Seneca Egbert, M.D., Dean.	Sept. 26	June 3	114
4	University of California	1,515,756	183	14	33	3	84	34	34	150	150	150	150	Frank C. Hammond, M.D., Dean.	Sept. 15	June 3	115
5	University of Wisconsin	1,515,756	529	114	134	38	164	36	218	213	210	212	210	Allen J. Smith, M.D., Dean.	Sept. 23	June 21	116
6	University of Illinois	1,515,756	300	9	56	4	1	103	33	146	146	144	144	Clara Marshall, M.D., Dean.	Sept. 21	May 31	117
7	University of Minnesota	538,123	431	159	159	18	18	42	35	210	210	210	210	Thomas S. Arbutnot, M.D., Dean.	Oct. 4	June 14	118
8	University of Texas	219,928	52	8	151	8	18	30	34	...	...	...	...	Harry T. Marshall, M.D., Secretary.	June 6	Feb. 25	119
9	University of Maryland	219,928	379	2	38	0	18	30	34	...	...	...	...	Blas C. Alcauz, M.D., Secretary.	July 2	March 7	120
10	University of North Carolina	56,573	227	2	38	0	7	33	32	100	100	75	75	Robert Wilson, Jr., M.D., Dean.	Oct. 1	May 31	121
11	University of South Dakota	2,183	6	1	320	3	...	9	33	60	60	...	...	G. P. Lommen, B.S., Dean.	Sept. 12	June 8	122
12	University of Tennessee	37,753	21	1	1	0	19	11	26	45	45	50	50	D. W. Crawford, M.D., Registrar.	Nov. 1	May 31	123
13	University of Kentucky	37,753	95	2	20	0	...	26	28	60	75	65	65	S. L. Jones, M.D., Dean.	Oct. 1	May 1	124
14	University of Missouri	106,476	277	4	53	3	5	29	29	65	65	65	65	G. W. Hubbard, M.D., Dean.	Sept. 14	April 25	125
15	University of Iowa	106,476	203	...	63	...	3	51	31	125	125	150	150	R. O. Tucker, M.D., Dean.	Sept. 5	May 1	126
16	University of Wisconsin	106,476	271	...	39	...	5	47	30	125	125	150	150	William L. Dudley, M.D., Dean.	Sept. 14	May 1	127
17	University of Illinois	136,363	104	1	17	0	4	42	30	100	100	100	100	E. C. Ellett, M.D., Dean.	Sept. 15	May 1	128
18	University of Michigan	136,363	425	1	101	0	2	38	30	100	100	100	100	W. B. Rogers, M.D., Dean.	Oct. 1	May 18	129
19	University of Tennessee	136,363	34	1	6	0	...	16	28	50	50	50	50	M. V. Lyne, M.D., Dean.	Sept. 14	April 14	130
20	University of Wisconsin	34,651	111	1	18	0	...	...	...	...	...	...	...	...	...	...	131
21	University of Michigan	68,137	406	8	88	1	2	38	31	105	105	130	130	W. R. Howard, M.D., Secretary.	Sept. 26	May 12	132
22	University of Texas	38,000	80	1	28	0	...	23	32	55	30	20	5	William S. Carter, M.D., Dean.	Oct. 1	May 31	133
23	University of Wisconsin	104,541	67	...	9	...	...	28	28	100	100	125	125	Edward H. Carey, M.D., Dean.	Oct. 3	May 1	134
24	University of Michigan	104,541	61	...	17	...	...	33	28	110	105	100	100	John O. Reynolds, M.D., Dean.	Sept. 29	April 30	135
25	University of Utah	64,593	29	1	...	...	...	16	34	65	65	...	...	George M. Marshall, A.M., Acting Dean.	Sept. 19	June 3	136
26	University of Vermont	21,880	178	30	30	...	2	54	29	135	135	165	165	J. N. Jenne, M.D., Secretary.	Nov. 14	June 20	137
27	University of Virginia	109,461	191	...	38	...	7	54	34	100	100	100	100	Christopher Tompkins, M.D., Dean.	Sept. 13	May 30	138
28	University of Virginia	109,461	137	...	22	...	1	66	33	100	100	100	100	A. L. Gray, M.D., Dean.	Sept. 14	May 25	139
29	University of Virginia	10,000	87	...	31	...	6	36	36	150	140	120	100	R. H. Whitehead, M.D., Dean.	Sept. 15	June 14	140
30	University of Virginia	14,500	27	...	...	...	...	9	36	50	50	...	...	John N. Simpson, M.D., Dean.	Sept. 15	June 15	141
31	University of Wisconsin	332,495	380	12	50	3	10	62	30	135	135	150	150	Warren B. Hill, M.D., Dean.	Oct. 4	May 22	142
32	University of Wisconsin	332,495	285	8	49	2	10	56	31	125	125	125	125	Thomas C. Phillips, M.D., Dean.	Oct. 3	May 30	143
33	University of Wisconsin	27,610	46	2	5	1	...	19	35	130	130	...	...	Charles R. Burden, M.D., Dean.	Sept. 29	June 23	144
34	University of Wisconsin	51,000	122	22	303	5	76	27	22	91	101	112	121	A. W. H. Lindsay, M.D., Secretary.	Aug. 25	April 27	145
35	University of Wisconsin	19,261	57	3	7	2	5	26	30	100	100	100	100	A. R. E. Williamson, M.D., Dean.	Sept. 28	April 26	146
36	University of Wisconsin	49,431	116	...	30	...	...	22	30	100	100	100	100	W. E. Waugh, M.D., Registrar.	Sept. 15	May 1	147
37	University of Wisconsin	375,000	829	...	79	...	10	50	31	138	138	145	154	John W. Seane, M.D., Registrar.	Oct. 3	May 30	148
38	University of Wisconsin	375,000	217	...	29	...	14	50	34	110	118	126	138	E. P. Lachapelle, M.D., Dean.	Oct. 3	June 20	149
39	University of Wisconsin	70,000	94	...	13	...	10	17	31	60	60	60	60	Michael J. Aherne, M.D., Dean.	Sept. 15	June 20	150
40	University of Wisconsin	338,814	572	18	122	3	19	157	31	150	150	150	150	A. Primrose, M.D., Secretary.	Sept. 27	May 18	151
41	University of Wisconsin	100,000	109	1	3	0	1	49	29	155	150	150	150	E. S. Fopphim, M.D., Registrar.	Sept. 20	May 1	152

H., Homeopathic; E., Eclectic; Ph.M., Physiochemical; P. Panpathic. * Night schools. † Gives only two years of the medical course. ‡ Total fees for the fifth year are \$110.

REFERENCES TO TABLE 1

- (a) Cooper Medical College will continue to teach and will graduate those matriculated prior to 1909. After that date all work will be under the charge of the Leland Stanford Junior University Department of Medicine.
 (b) These colleges will complete their merger Jan. 1, 1911.
 (c) These colleges have been merged, retaining the name of Bennett Medical College.
 (d) Population figures given for both Kansas Cities.
 (e) This college has been suspended.

- (f) Formerly the Western Eclectic College of Medicine and Surgery of Kansas City, Kan.
 (g) This has just been reorganized on a non-sectarian basis.
 (h) Population figures include St. Paul and Minneapolis.
 (i) Tuition fees are less for residents of the state.
 (j) Merged with Western Reserve University.
 (k) These colleges have been merged with the new title, Cleveland-Pulite Medical College.
 (l) Following the suspension of the Epworth College of Medicine, this school has organized a clinical department at Oklahoma City.

- (m) Gives a five year course.
 (n) The enrollment of students given is for 1908-9; the graduates, those of 1910.
 (o) This college had 226 "matriculants and applicants" in 1908-9 according to its printed announcement. From other sources it is learned that only about 80 medical students actually attended throughout the session of 1909-10.
 (p) Hamline University still grants degrees to students matriculated prior to the fall of 1909 who could not meet the entrance requirements of the College of Medicine of the University of Minnesota, with which it was merged.

(Continued from page 681)

1. A strict enforcement of all standards and requirements, the college itself to be held responsible for any instances where they are not enforced.

2. A requirement for admission of at least a four-year high school education superimposed on eight years of grammar school work, or the actual equivalent education, this to consist of 14 units as defined by the College Entrance Examining Board and required by the Carnegie Foundation for the Advancement of Teaching (see schedule, page 681).

3. As soon as conditions warrant, the minimum requirement for admission should be enlarged to include at least one year's college work in physics, chemistry and biology and a reading knowledge of at least one modern language, preferably German or French.

4. A requirement that students be in actual attendance in the college within the first week of each annual session and thereafter.

5. That actual attendance at classes be insisted on except for good cause, such as for sickness, and that no credit be given under any circumstances for less than 80 per cent. of attendance on each course.

6. That advanced standing be granted only to students of other acceptable colleges and that in granting advanced standing there shall be no discrimination against the college's full-course student.

7. Careful and intelligent supervision of the entire school by a dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals of medical education as interpreted by modern demands.

8. A good system of records showing conveniently the credentials, attendance, grades and accounts of the students.

9. A fully graded course covering four years of at least 30 weeks each, exclusive of holidays, and at least 30 hours per week of actual work; this course should be clearly set forth in a carefully prepared and printed schedule of lectures and classes.

10. Two years of work consisting largely of laboratory work in thoroughly equipped laboratories in anatomy, histology, embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis.

11. Two years of clinical work largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence.

12. At least six expert, thoroughly trained instructors in the laboratory branches, salaried so they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects. These instructors should rank sufficiently high to have some voice in the conduct of the college. There should also be a sufficient number of assistants in each department to look after the less important details.

13. The medical teaching should be of at least the same degree of excellence as obtains in our recognized liberal arts colleges and technical schools.

14. The members of the faculty, with a few allowable exceptions, should be graduates of institutions recognized as medical colleges and should have had a training in all departments of medicine. They should be appointed because of their ability as teachers and not because they happen to be on the attending staff of some hospital or for other like reasons.

15. The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff. The hospital should have a sufficiently large number of patients to permit the student to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties.

16. The college should have easily accessible hospital facilities of not less than 200 patients which can be utilized for clinical teaching (for senior classes of 100 students or less),

these patients to represent in fair proportion all departments of medicine.

17. The college should have additional hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

18. Facilities for at least five maternity cases for each senior student, who should have actual charge of these cases under the supervision of the attending physician.

19. Facilities for at least 30 autopsies during each college session (for senior classes of 100 students or less).

20. A dispensary, or out-patient department, under the control of the college, the attendance to be a daily average of 60 cases (for senior classes of 100 students or less), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used.

21. The college should have a working medical library to include the more modern text and reference books and 10 or more leading medical periodicals; the library room to be easily accessible to students during all or the greater part of the day; to have suitable tables and chairs and to have an attendant in charge.

22. A working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes.

23. A supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a Roentgen ray or other apparatus now so generally used in medical teaching.

24. The colleges should show evidences of reasonably modern methods in all departments and evidences that the equipment and facilities are being intelligently used in the training of medical students.

25. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions and graduation should be clearly set forth, together with complete lists of its matriculants and latest graduating class in regular annual catalogues or announcements.

Definitions of a Medical College* and a Medical School†

"An institution to be ranked as a medical college must have at least six (6) professors giving their entire time to medical work, a graded course of four full years of college grade in medicine, and must require for admission not less than the usual four years of academic or high-school preparation, or its equivalent, in addition to the preacademic or grammar school studies."

By a medical school as differentiated from a medical college is meant a part of a university requiring for admission the equivalent of two years of collegiate work and which offers instruction of not less than two years' duration, leading to the degree of Doctor of Medicine.

* This definition of a college is based on that given in the revised ordinances of the State of New York and which was also adopted by the Carnegie Foundation for the Advancement of Teaching as their standard.

† Based on the definition of the term "school" adopted in 1909 by the Association of American Universities.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership are as follows:

Preliminary Education: (a) A bachelor's degree from an approved college or university. (b) A diploma from an accredited high school, normal school or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study embracing not less than two years (4 points) of Latin or four years of either high school French or German, provided an examination is passed in the elements of Latin grammar, two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, one year (2 points) of physics, and six years (12 points) of further credit in language literature, history or science. (c) An examination in the following branches totaling 30 points: A. Required (16 points): Mathematics (4 points), English (4 points), History (2 points), Latin (4 points), Physics (2 points).

B. Elective (14 points): English language and literature, 4 points; language, German, French, Spanish or Greek, in each not

Number.	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Number.
		Alabama.....633	Arizona.....5	Arkansas.....322	California.....359	Colorado.....157	Connecticut.....271	Delaware.....39	Dist. of Columbia.....116	Florida.....143	Georgia.....702	Idaho.....21	Illinois.....1939	Indiana.....571	Iowa.....636	Kansas.....412	Kentucky.....428	Louisiana.....376	Maine.....153	Maryland.....306	Massachusetts.....899	
1	Birmingham Medical College, Birmingham.....	176		1						6	4						1					1
2	University of Alabama, Medical Dept., Mobile.....	163	1							1								1				2
3	College of Physicians and Surgeons, Little Rock.....	1	1	67							2		5	2			2	4				3
4	University of Arkansas, Med. Dept., Little Rock.....			141									1	2			1	2				4
5	College of Phys. and Surg., San Francisco.....				12	1									3							5
6	Hahnemann Med. Coll. of the Pacific.—H.....				33											1						6
7	Leland Stanford Junior Univ., Dept. of Med.....				14																	7
8	Cooper Medical College, San Francisco.....				71									1	1							8
9	Univ. of California, Med. Dept., San Francisco.....				47								1									9
10	Univ. of California, Med. Dept., Los Angeles.....				39	2	1						2	1	1							10
11	California Eclectic Med. Coll., Los Angeles.....				19											1						11
12	College of Physicians and Surgeons, Los Angeles.....				11								5	1	3		1	1			4	12
13	Oakland College of Med. and Surgery, Oakland.....				19																	13
14	College of Medical Evangelists, Loma Linda.....				6																	14
15	Denver and Gross College of Medicine, Denver.....			1	2	70							3	1	7		2					15
16	University of Colorado, School of Med., Boulder.....	1			1	39				1		3	2	1	5		2					16
17	Yale Medical School, New Haven.....	1					87										1				5	17
18	George Washington University, Dept. of Med.....				3				33				2		1					4	3	18
19	Georgetown Univ., School of Med., Washington.....	1			3		4		36				1		1					6	10	19
20	Howard University, Med. Dept., Washington.....	3		1			2	3	29	7	7		3				2	2		12	2	20
21	Atlanta College of Phys. and Surg., Atlanta.....	37			1		1	1		30	201						1	1				21
22	Atlanta School of Medicine, Atlanta.....	15								16	150					1		2			1	22
23	Georgia College of Eclectic Med. and Surg.—E.....										99											23
24	Hospital Medical College, Atlanta.—E.....			2						5	29											24
25	Medical College of Georgia, Augusta.....						1			3	91											25
26	American Medical Missionary College, Chicago.....	1											7	3	3	1	1					26
27	Bennett Medical College, Chicago.....			1		1				1			129	8	10	3	2				1	27
28	Chicago College of Medicine and Surgery.....	5		2	3		3			2			251	50	22	13	5	1		1	4	28
29	College of Physicians and Surgeons, Chicago.....	1				3			1	1		1	306	20	18	1	1	1				29
30	College of Medicine and Surgery, Chicago.—Ph.M.....												33	2	2		1				1	30
31	Hahnemann Med. Coll. and Hosp., Chicago.—H.....			1	2					1		1	64	7	21	3					3	31
32	Hering Medical College, Chicago.—H.....					1							23	2	1		2					32
33	Illinois Medical College, Chicago.....	1		1									28	5				1		1		33
34	Jenner Medical College, Chicago.....	1		1	3				1		1		165	2	2		2				1	34
35	Northwestern University Medical School, Chicago.....			1	3	7							280	44	66	15					1	35
36	Reliance Medical College.....												71									36
37	Rush Medical College, Chicago.....	2		4	4	3				1	1	2	174	23	39	25	3	1				37
38	Indiana University, School of Med., Indianapolis.....						1				1		6	231	1							38
39	Drake University, College of Med., Des Moines.....				1	2						1	3		73	3						39
40	State Univ. of Iowa, Coll. of Med., Iowa City.....												10		161		1		1			40
41	State Univ. of Iowa, Coll. of Homeo. Med.—H.....											1			30							41
42	Kansas Medical College, Topeka.....			1												60						42
43	Univ. of Kansas, School of Med., Kansas City.....															80						43
44	Louisville National Medical College, Louisville.....	2								1	1						19					44
45	Southwestern Homeopathic Coll., Louisville.—H.....													3			8					45
46	University of Louisville, Med. Dept., Louisville.....	7		14	2		1			5	5		27	71	9	5	240	15	1		2	46
47	Flint Medical College, New Orleans.....			1							2						10					47
48	Tulane University Med. Dept., New Orleans.....	51		9			2			7	15						1	192			1	48
49	Medical School of Maine, Portland.....				1		3												60		3	49
50	Atlantic Medical College, Baltimore.....																					50
51	Baltimore Medical College, Baltimore.....	2		1			22		2	1	2						1	5	23	29		51
52	College of Physicians and Surgeons, Baltimore.....			1			25	2		1	4							1	36	26		52
53	Johns Hopkins Univ., Med. Dept., Baltimore.....	7		4	11	1	18	1	3	2	10		12	8	4	4	9	4	4	51	6	53
54	Maryland Medical College, Baltimore.....	2					2	2	1		1		2	1		2		1		116	2	54
55	Univ. of Maryland, School of Med. Baltimore.....						4	7	1	3	7											55
56	Woman's Medical College of Baltimore.....						1						1		1					3	1	56
57	Boston University, School of Medicine.—H.....																3				56	57
58	College of Physicians and Surgeons, Boston.....						2			1	1						6					58
59	Harvard Medical School, Boston.....			1	10	5	3		1				5	3	4	1	2		20	151		59
60	Tufts College Medical School, Boston.....						10						1		1			20		340		60
61	Detroit College of Medicine, Detroit.....												2	1								61
62	Detroit Homeopathic College, Detroit.—H.....																					62
63	Univ. of Michigan, Dept. of Med. and Surg.....	1			4	1	1		1		1	1	10	10	5		4		1		3	63
64	Univ. of Michigan, Homeo. Coll., Ann Arbor.—H.....												1	1	2	1		1	1	2	1	64
65	Univ. of Minnesota, Coll. of Med. and Surg.....												2	1	2	1						65
66	University of Mississippi, Med. Dept., Oxford.....																					66
67	Mississippi Medical College, Meridian.....	4																1				67
68	University of Missouri, Med. Dept., Columbia.....																					68
69	Kansas City Hahnemann Med. Coll.—H.....					1							2	2	2	25						69
70	University Medical College, Kansas City.....			3		1							1	1	3	80						70
71	Eclectic Medical University, Kansas City.—E.....			1												8						71
72	Ensworth Medical College, St. Joseph.....											1			5	9						72
73	American Medical College, St. Louis.—E.....			3									4			1						73
74	Barnes Medical College, St. Louis.....	2				1							52	3	9	4	4					74
75	Hippocratican College of Medicine, St. Louis.....																					75
76	St. Louis University, School of Medicine.....	1	1	4		2						2	64	5	14	7	1	2				76
77	St. Louis College of Physicians and Surgeons.....	2		6	1								93	3	12	3	4	1				77
78	Washington University, Med. Dept., St. Louis.....	1		4	2	1					1	1	54	2	7	5						78
79	Creighton Medical College, Omaha.....				1	1	1								43	3					1	79
80	University of Nebraska, Coll. of Med.....														8	1						80
81	Lincoln Medical College, Lincoln.—E.....														1	1						81
82	Dartmouth Medical School, Hanover.....						4											2			11	82
83	Albany Medical College, Albany.....																					83
84	Columbia Univ., Coll. of Phys. and Surg.....	2			1	12					1		5		1	2	2		1	3	1	84
85	Cornell Univ. Medical College, New York City.....																					85
86	Eclectic Med. Coll. of the City of New York.—E.....					2																86
87	Fordham Univ. School of Med., New York City.....				1		1	1														87
88	Long Island College Hospital, New York City.....					4	1															88
89	New York Med. Coll. and Hosp. for Women.—H.....					2																89
90	New York Med. Coll. and Hosp.—H.....																					90
91	Univ. and Bellevue Hosp. Med. Coll., New York.....				3	1	9			2			2		1		1				6	91
92	Syracuse University, Coll. of Med., Syracuse.....				1										1	1						92

* Figures for 1908-9. † Total exact; distribution based on that of 1908-9. H., Homeopathic; E., Eclectic; Ph.M., Physiomedical; P., Panpathic.

[illegible]

TABLE 2.—SHOWING DISTRIBUTION

Journ. A. M. A.
Aug. 20, 1910

Number.	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Number.
		Alabama.....633	Arizona.....5	Arkansas.....392	California.....350	Colorado.....157	Connecticut.....271	Delaware.....39	Dist. of Columbia.....116	Florida.....143	Georgia.....702	Idaho.....21	Illinois.....1939	Indiana.....571	Iowa.....636	Kansas.....412	Kentucky.....428	Louisiana.....376	Maine.....153	Maryland.....306	Massachusetts.....809	
93	University of Buffalo, Medical Dept., Buffalo.....						1							1								93
94	Leonard Medical School, Raleigh.....	9							2	6	4											94
95	University of North Carolina, Med. Dept.....																	1		2	1	95
96	North Carolina Medical College, Charlotte.....																					96
97	Wake Forest School of Medicine, Wake Forest.....																					97
98	University of North Dakota, Med. Dept.....																					98
99	Cleveland College of Phys. and Surg., Cleveland.....					1																99
100	Cleveland Homeo. Med. College, Cleveland.—H.†.....																					100
101	Western Reserve Univ., Med. Dept., Cleveland.....												1	1								101
102	Eclectic Medical College, Cincinnati.—E.....			1							2		1	4	2							102
103	Ohio-Miami Med. Coll. of the Univ. of Cincinnati.....												6	7	2	10						103
104	Pulte Medical College, Cincinnati.—H.....													10		1	21					104
105	Starling-Ohio Medical College, Columbus.....					1							2	2	2	1						105
106	Toledo Medical College, Toledo.....																					106
107	Epworth College of Medicine, Oklahoma City.....			3												2						107
108	University of Oklahoma, School of Med., Norman.....																					108
109	University of Oregon, Med. Dept., Portland.....																					109
110	Willamette University, Med. Dept., Salem.....				1							2	1		2							110
111	Hahnemann Med. Coll. and Hosp., Phila.—H.....				1		2	1					1		4		2		2			111
112	Jefferson Medical College, Philadelphia.....	5	1	4	5		9	9		1	4		4	8	7	5	6		2	2	7	112
113	Medico-Chirurgical College of Philadelphia.....				1		9	9														113
114	Temple University, Med. Dept., Philadelphia.....						1	1				1	1		1	1		1		3	1	114
115	University of Pennsylvania, Dept. of Med.....	2	1	3	2	3	12	6		2	2		3	4	4	2	1	2	3	2	9	115
116	Woman's Med. Coll. of Pennsylvania, Phila.....			1	3	2	12	1		1				1	2							116
117	University of Pittsburgh, Med. Dept., Pittsburgh.....				1										1							117
118	Medical College of South Carolina, Charleston.....									10	3											118
119	Univ. of South Dakota, Coll. of Med., Vermillion.....																					119
120	Knoxville Medical College, Knoxville.....	1								1	1					1						120
121	Lincoln Memorial Univ., Med. Dept., Knoxville.....					1										1	1					121
122	Meharry Medical College, Nashville.....	23		12						3	32		2		5	7	7					122
123	Univ. of Nashville and Tennessee, Dept. of Med.....	18		11						4	2		2			10	15					123
124	Vanderbilt University, Med. Dept., Nashville.....	29		7	5					5	3		2	1		30	15					124
125	College of Phys. and Surg., Memphis.....			11		1																125
126	Memphis Hospital Medical College, Memphis.....	9		45		1				3	1		3		1	3	77					126
127	Univ. of West Tennessee, Med. Dept., Memphis.....			4						1	1											127
128	Chattanooga Medical College, Chattanooga.....	30			2					7	8		1	1								128
129	Fort Worth University, Med. Dept., Fort Worth.....	1																				129
130	University of Texas, Dept. of Med., Galveston.....																					130
131	Baylor University, College of Medicine, Dallas.....																					131
132	Southwestern University Medical College, Dallas.....															1						132
133	Univ. of Utah, Dept. of Med., Salt Lake City.....																					133
134	Univ. of Vermont, Coll. of Med., Burlington.....					14																134
135	Medical College of Virginia, Richmond.....				1					1					1				13	2	27	135
136	University College of Medicine, Richmond.....	1																				136
137	Univ. of Virginia, Dept. of Med., Charlottesville.....	7		2				1	2	1	3											137
138	West Virginia Univ., Coll. of Med., Morgantown.....																					138
139	Marquette University, Med. Dept., Milwaukee.....					1							3									139
140	Wisconsin Coll. of Phys. and Surg., Milwaukee.....												1		3							140
141	University of Wisconsin, Coll. of Med., Madison.....												5		1							141

* Figures for 1908-9. † Total exact; distribution based on that of 1908-9. H., Homeopathic; E., Eclectic; Ph.M., Physiomedical; P., Panpathic.

(Continued from page 685)

less than 2 points; solid geometry and trigonometry ($\frac{1}{2}$ year each), 2 points; biology (one year) or botany and zoology ($\frac{1}{2}$ year each), 2 points; chemistry (1 year), 2 points; physical geography and geology ($\frac{1}{2}$ year each), 1 point; physiology and hygiene ($\frac{1}{2}$ year each), 1 point; astronomy ($\frac{1}{2}$ year), 1 point; drawing ($\frac{1}{2}$ year), 1 point. One point in any subject in a high school or academic course demands not less than five periods per week of forty-five minutes each for eighteen weeks. (d) Certificates from reputable instructors recognized by any state board of medical examiners duly authorized by law or by the superintendents of public instruction in states having no board of examination, may be accepted in lieu of any part of this examination. (e) This examination must be conducted by or under the authority of the board of examiners or of the superintendent of public instruction of the city or state in which the college is located as provided for in subsection (d). In no case shall it be conducted by any person connected with the faculty, medical or otherwise, of the institution to which the student is seeking admission.

A student may be allowed to enter on his medical work conditioned in not more than six points, and these conditions must be removed by satisfactory examination before he is allowed to enter on the second year of his medical course.

Advanced Standing: Colleges in membership in this Association may honor the official credentials presented by students from other colleges having the standard requirements maintained by members of this Association, excepting for the fourth year of their course, but no member shall admit a student to advanced standing without first communicating with the college from which such student desires to withdraw, and receiving from the dean of such college a direct written communication certifying to the applicant's professional and moral qualifications, and to the exact work he had done in said college.

No time credit shall be given to holders of a Bachelor's degree, but subject credit can be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of doctor of medicine.

CURRICULUM

	No. of Lectures.	Hours of Laboratory.	Hours of Clinics.	Total.
Histology	30	60	..	90
Embryology	30	60	..	90
Osteology	30	..	..	30
Anatomy	190	230	..	420
Physiology	180	120	..	300
Chemistry and Toxicology.....	100	200	..	300
Materia Medica	40	20	..	60
Pharmacology	40	20	..	60
Therapeutics	90	..	..	90
Bacteriology	40	100	..	140
Pathology	100	140	..	240
Medical Zoology, Postmortem Work and Clinical Microscopy.....	30	60	..	90
Physical Diagnosis	20	..	80	100
Practice of Medicine.....	180	..	360	540
Surgery	180	..	360	540
Obstetrics	100	..	60	160
Gynecology	50	..	110	160
Pediatrics	40	..	60	100
Eye and Ear.....	30	..	30	60
Nose and Throat.....	30	..	30	60
Mental and Nervous Diseases.....	60	..	60	120
Electro-Therapeutics	20	..	40	60
Genito-Urinary Diseases	30	..	30	60
Dermatology and Syphilis.....	20	..	20	40
Hygiene and Public Health.....	30	..	..	30
Dietetics	30	..	..	30
Medical Jurisprudence	30	..	..	30

1,750 1,010 1,240 4,000

(Continued on page 639)

Number.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Number.	
83	Michigan.....	448																																93
84	Minnesota.....	338																																94
85	Mississippi.....	561																																95
86	Missouri.....	807																																96
87	Montana.....	37																																97
88	Nebraska.....	301																																98
89	Nevada.....	6																																99
90	New Hampshire.....	97																																100
91	New Jersey.....	409																																101
92	New Mexico.....	11																																102
93	New York.....	2120																																103
94	North Carolina.....	403																																104
95	North Dakota.....	97																																105
96	Ohio.....	902																																106
97	Oklahoma.....	192																																107
98	Oregon.....	130																																108
99	Pennsylvania.....	1090																																109
100	Rhode Island.....	101																																110
101	South Carolina.....	413																																111
102	South Dakota.....	85																																112
103	Tennessee.....	563																																113
104	Texas.....	719																																114
105	Utah.....	88																																115
106	Vermont.....	102																																116
107	Virginia.....	465																																117
108	Washington.....	89																																118
109	West Virginia.....	266																																119
110	Wisconsin.....	519																																120
111	Wyoming.....	11																																121
112	Philippine Is., Etc., 54																																	122
113	Foreign.....	563																																123
114	Totals.....	21,531																																124

(Concluded from page 688)

Medical Education.—Candidates for the degree of Doctor of Medicine shall have attended four courses of study in four calendar years, each annual course to have been of not less than thirty-two teaching weeks' duration, and at least ten months shall intervene between the beginning of any course and the beginning of the preceding course. No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of doctor of medicine.

The entire course of four years shall consist of at least 4,000 hours, divided into the subjects as shown in the table (page 688), and no college shall be recognized that falls below this standard over 20 per cent. in any one branch or over 10 per cent. in the total. Laboratory or clinic hours may be substituted for didactic hours.

Each student shall be obliged to attend 80 per cent. of the exercises in every annual course of study for which he seeks credit. No student shall be given credit on examination unless he attains a grade of at least 70 per cent., or its equivalent, in any other marking system. And no student shall be graduated unless he shall have attained a passing grade in each and all subjects of the required curriculum.

A college which gives less than a four years' course of study, but does not graduate students, and is possessed of other required qualifications, may be admitted to membership.

Each medical college in membership in the Association shall print in every annual catalogue or announcement a table of the total number of hours work given in said college, arranged both by subjects and years.

The following colleges are members of the Association: College of Physicians and Surgeons, Los Angeles, Cal.; Leland Stanford Junior University College of Medicine, Palo Alto and San Francisco, Cal.; University of California, Medical Department, Berkeley, Los Angeles, and San Francisco, Cal.; University of Colorado, School of Medicine, Boulder, Colo.; Denver and Gross College of Medicine, Denver, Colo.; George Washington University Department of Medicine, Washington, D. C.; Georgetown University School of Medicine, Washington, D. C.; Howard University Medical Department,

Washington, D. C.; American Medical Missionary College, Battle Creek, Mich., and Chicago, Ill.; College of Physicians and Surgeons, Chicago, Ill.; Indiana University School of Medicine, Bloomington and Indianapolis, Ind.; Drake University College of Medicine, Des Moines, Iowa; State University of Iowa, College of Medicine, Iowa City, Iowa; Kansas Medical College, Topeka, Kan.; University of Kansas, School of Medicine, Lawrence, Kan.; University of Louisville, Medical Department, Louisville, Ky.; Tulane University, Medical Department, New Orleans, La.; Baltimore Medical College, Baltimore, Md.; College of Physicians and Surgeons, Baltimore, Md.; Johns Hopkins University, Medical Department, Baltimore, Md.; University of Maryland School of Medicine, Baltimore, Md.; Harvard Medical School, Boston, Mass.; Tufts College Medical School, Boston, Mass.; Detroit College of Medicine, Detroit, Mich.; University of Michigan, Department of Medicine and Surgery, Ann Arbor, Mich.; University of Mississippi Medical Department, Oxford, Miss.; University of Missouri Department of Medicine, Columbia, Mo.; University Medical College, Kansas City, Mo.; St. Louis University Medical Department, St. Louis, Mo.; Washington University Medical Department, St. Louis, Mo.; Washington University Medical Department, Omaha, Neb.; University of Buffalo, Medical Department, Buffalo, N. Y.; University and Bellevue Hospital Medical College, New York, N. Y.; Cornell University Medical College, New York, N. Y.; University of North Carolina Medical Department, Chapel Hill, N. C.; Wake Forest College School of Medicine, Wake Forest, N. C.; University of North Dakota Medical Department, University, N. D.; Cleveland College of Physicians and Surgeons, Cleveland, Ohio; Western Reserve University Medical College, Cleveland, Ohio; Starling-Ohio Medical College, Columbus, Ohio; State University of Oklahoma School of Medicine, Norman, Okla.; Meharry Medical College, Nashville, Tenn.; Vanderbilt University, Medical Department, Nashville, Tenn.; Medical College of Virginia, Richmond, Va.; University College of Medicine, Richmond, Va.; University of West Virginia Medical Department, Morgantown, W. Va.; University of Wisconsin College of Medicine, Madison, Wis.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

TABLE 3.—WHERE STUDENTS STUDY MEDICINE

A. STUDENTS FROM THE EASTERN STATES

Eastern States.	Year.	Attending Medical Schools in the								Totals.
		East.		Middle States.		West.		South.		
		Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	
Connecticut.....	1908	261	96.7	6	2.2	0	0.	3	1.1	270
	1909	255	97.0	5	1.9	1	0.4	2	0.7	263
	1910	258	95.2	8	2.9	1	0.4	4	1.5	271
Delaware.....	1908	52	98.1	1	1.9	0	0.	0	0.	53
	1909	53	98.1	0	0.	1	1.9	0	0.	54
	1910	38	97.4	0	0.	0	0.	1	2.6	39
Dist. of Columbia	1908	117	96.0	2	1.6	1	0.8	2	1.6	122
	1909	109	92.4	4	3.4	0	0.	5	4.2	118
	1910	109	94.0	5	4.3	0	0.	2	1.7	116
Maine.....	1908	172	91.5	6	3.3	2	1.1	2	1.1	182
	1909	165	91.8	5	2.9	3	1.7	1	0.6	174
	1910	149	97.4	4	2.6	0	0.	0	0.	153
Maryland.....	1908	236	95.5	6	2.4	1	0.5	4	1.6	247
	1909	302	97.1	4	1.3	0	0.	5	1.6	311
	1910	298	97.4	4	1.3	0	0.	4	1.3	306
Massachusetts.....	1908	835	97.4	15	1.7	4	0.5	3	0.4	857
	1909	789	97.0	12	1.5	7	0.9	5	0.6	813
	1910	778	96.2	20	2.5	4	0.4	7	0.9	809
New Hampshire...	1908	113	95.0	4	3.4	1	0.8	1	0.8	119
	1909	102	99.0	1	1.0	0	0.	0	0.	103
	1910	95	97.9	0	0.	2	2.1	0	0.	97
New Jersey.....	1908	426	91.2	18	4.0	2	0.5	6	1.3	452
	1909	438	97.1	10	2.2	1	0.3	2	0.4	451
	1910	415	91.9	16	3.4	1	0.2	7	1.5	469
New York.....	1908	1978	93.5	105	5.0	8	0.4	25	1.1	2116
	1909	1959	92.3	133	6.3	12	0.5	19	0.9	2123
	1910	1972	93.0	126	5.9	10	0.5	12	0.6	2120
Pennsylvania.....	1908	1920	91.3	155	7.4	4	0.2	25	1.1	2104
	1909	2005	92.9	130	6.0	11	0.5	13	0.6	2159
	1910	1828	91.9	145	7.3	7	0.3	10	0.5	1990
Rhode Island.....	1908	92	92.9	5	5.1	0	0.	2	2.0	99
	1909	94	94.9	3	3.1	2	2.0	0	0.	99
	1910	95	94.0	5	5.0	0	0.	1	1.0	101
Vermont.....	1908	93	87.8	10	9.4	3	2.8	0	0.	106
	1909	95	89.6	7	6.6	4	3.8	0	0.	106
	1910	93	91.1	7	6.9	2	2.0	0	0.	102
Virginia.....	1908	448	86.0	14	2.7	0	0.	59	11.3	521
	1909	410	85.1	17	3.5	3	0.6	52	10.8	482
	1910	400	86.0	21	4.5	3	0.7	41	8.8	465
West Virginia.....	1908	190	65.1	89	30.5	0	0.	13	4.4	292
	1909	168	62.0	89	32.8	0	0.	14	5.2	271
	1910	149	56.0	105	39.5	2	0.7	10	3.8	266
Totals.....	1908	6936	92.0	436	5.8	26	0.3	145	1.9	7543
	1909	6944	92.3	420	5.6	45	0.5	118	1.6	7527
	1910	6707	91.8	466	6.4	32	0.5	99	1.3	7204

Middle States. B. STUDENTS FROM THE MIDDLE STATES

Illinois.....	1908	55	3.1	1651	94.4	14	0.8	29	1.7	1749
	1909	51	2.8	1832	95.4	14	0.8	20	1.0	1920
	1910	315	16.0	1613	82.3	14	0.8	17	0.9	1959
Indiana.....	1908	23	3.2	680	94.6	9	1.2	7	1.0	719
	1909	29	4.8	565	92.6	9	1.5	7	1.1	610
	1910	28	4.9	530	92.8	5	0.9	8	1.4	571
Iowa.....	1908	26	3.6	676	94.4	8	1.1	6	0.9	716
	1909	35	4.8	658	91.1	27	3.7	2	0.4	722
	1910	30	4.7	582	91.5	22	3.5	2	0.3	636
Kansas.....	1908	26	5.6	418	89.9	3	0.6	18	3.9	465
	1909	20	5.2	349	90.2	9	2.3	9	2.3	387
	1910	26	6.3	362	87.9	12	2.9	12	2.9	412
Kentucky.....	1908	33	5.2	541	85.2	0	0.	61	9.6	635
	1909	28	5.6	401	80.7	6	1.2	62	12.5	497
	1910	29	6.8	331	77.3	2	0.5	66	15.4	428
Michigan.....	1908	24	4.9	457	92.7	4	0.8	8	1.6	493
	1909	11	2.2	479	95.7	6	1.4	4	0.7	491
	1910	11	2.5	429	95.6	6	1.3	3	0.6	449
Minnesota.....	1908	21	5.7	350	94.3	0	0.	0	0.	371
	1909	25	7.2	313	90.2	7	2.0	2	0.6	347
	1910	16	4.7	313	92.6	6	1.8	3	0.9	333
Missouri.....	1908	26	2.8	851	92.6	9	1.0	33	3.6	919
	1909	27	3.4	743	91.4	12	1.3	31	3.9	813
	1910	28	3.5	734	91.0	12	1.4	33	4.1	807
Nebraska.....	1908	12	3.6	317	95.5	2	0.6	1	0.3	332
	1909	8	2.3	329	95.1	9	2.6	0	0.	346
	1910	8	2.7	285	94.6	8	2.7	0	0.	301
North Dakota....	1908	6	7.9	70	92.1	0	0.	0	0.	76
	1909	8	10.4	68	88.3	1	1.3	0	0.	77
	1910	7	7.2	89	91.8	1	1.0	0	0.	97
Ohio.....	1908	140	15.3	756	82.0	5	0.6	11	1.2	912
	1909	116	12.5	792	85.3	13	1.4	8	0.8	929
	1910	99	11.0	780	86.5	14	1.6	9	0.9	902
South Dakota....	1908	3	4.2	66	93.0	0	0.	2	2.8	71
	1909	1	1.1	86	98.9	0	0.	0	0.	87
	1910	4	4.7	80	94.1	1	1.2	0	0.	85
Wisconsin.....	1908	22	4.5	450	94.2	2	0.4	4	0.8	478
	1909	18	4.2	407	94.7	5	1.1	0	0.	430
	1910	16	3.1	495	96.0	5	0.9	0	0.	519
Totals.....	1908	417	5.3	7283	91.8	56	0.6	180	2.3	7936
	1909	380	5.0	7013	91.6	118	1.5	145	1.9	7656
	1910	617	8.2	6626	88.3	108	1.2	153	2.0	7501

C. STUDENTS FROM THE WESTERN STATES

Western States.	Year.	Attending Medical Schools in the								Totals.
		East.		Middle States.		West.		South.		
		Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	
Arizona.....	1908	1	6.7	4	26.7	2	13.3	8	53.3	15
	1909	1	8.3	3	25.0	2	16.7	6	50.0	12
	1910	2	40.0	1	20.0	0	0.	2	40.0	5
California.....	1908	55	13.5	39	9.6	306	75.0	8	1.9	408
	1909	52	18.1	33	11.7	192	68.1	5	1.8	282
	1910	48	13.4	26	7.2	277	77.2	8	2.2	359
Colorado.....	1908	9	5.8	28	17.9	117	75.0	2	1.3	156
	1909	10	6.7	21	14.0	116	77.3	3	2.0	150
	1910	13	8.3	29	18.5	112	71.3	3	1.9	157
Idaho.....	1908	2	8.3	17	70.9	5	20.8	0	0.	24
	1909	1	3.8	16	61.6	8	30.8	1	3.8	26
	1910	1	4.8	11	52.2	9	42.8	0	0.	21
Montana.....	1908	8	18.6	32	74.4	1	2.3	2	4.7	43
	1909	6	19.4	21	67.7	4	12.9	0	0.	31
	1910	8	21.6	25	67.6	4	10.8	0	0.	37
Nevada.....	1908	1	12.5	3	37.5	3	37.5	1	12.5	8
	1909	1	12.5	3	37.5	4	50.0	0	0.	8
	1910	0	0.	5	83.3	1	16.7	0	0.	6
New Mexico.....	1908	2	18.2	3	27.3	2	18.2	4	36.3	11
	1909	3	37.5	4	50.0	1	12.5	0	0.	8
	1910	3	27.3	5	45.5	1	9.1	2	18.1	11
Oregon.....	1908	22	16.8	15	11.5	92	70.2	2	1.5	131
	1909	19	16.4	19	16.4	77	66.3	1	0.9	116
	1910	15	11.5	25	19.2	90	69.3	0	0.	130
Utah.....	1908	35	35.4	34	34.3	29	29.3	1	1.0	99
	1909	22	29.3	32	42.7	20	26.7	1	1.3	75
	1910	25	28.4	35	39.8	26	29.6	2	2.2	88
Washington.....	1908	26	25.2	47	45.7	26	25.2	4	3.9	103
	1909	29	32.6	36	40.4	31	33.6	3	3.4	89
	1910	26	29.3	40	44.9	21	23.6	2	2.2	89
Wyoming.....	1908	1	16.7	4	66.7	1	16.7	0	0.	6
	1909	3	21.4	5	35.7	5	35.7	1	7.2	14
	1910	3	27.3	5	45.4	3	27.3	0	0.	11
Totals.....	1908	162	16.1	226	22.5	584	58.2	32	3.2	1004
	1909	147	18.1	193	23.8	450	55.5	21	2.6	811
	1910	144	15.8	207	22.6	544	59.5	19	2.1	914

Southern States.

D. STUDENTS FROM THE SOUTHERN STATES

Alabama.....	1908	36	5.3	24	3.5	0	0.	623	91.2	633
	1909	34	5.0	24	3.4	0	0.	629	91.6	637
	1910	33	5.2	27	4.3	1	0.2	572	90.3	633
Arkansas.....	1908	20	4.8	60	14.3	0	0.	339	80.9	419
	1909	20	5.2	47	12.2	0	0.	317	82.6	334
	1910	18	4.5	56	14.3	1	0.5	317	80.7	392

CHANGES IN COLLEGES IN TEN YEARS

COLLEGES MERGED

1901

Marion-Sims College of Medicine, St. Louis, Mo., united with the St. Louis Medical College (now the St. Louis College of Medicine) and the Columbian Medical College, Kansas City, Mo., merged into the Medico-Chirurgical College of Kansas City, Missouri.

1902

Denver College of Medicine and the Gross Medical College, both of Denver, Colo., united, forming the Denver and Gross College of Medicine.
Dunham Medical College, Chicago, merged into the Hering Medical College, Chicago.
Hahnemann Medical College of Kansas City University and the Kansas City (Mo.) Homeopathic Medical College united, forming the Kansas City Hahnemann Medical College.

1903

National University Medical Department, Washington, D. C., absorbed by the Columbian University Medical Department (now the George Washington University, Department of Medicine).
Medical Department State University, Louisville, Ky., absorbed by the Louisville National Medical College.
Saginaw Valley (Michigan) Medical College absorbed by the Michigan College of Medicine and Surgery of Detroit.

1904

Chicago Homeopathic Medical College merged into the Hahnemann Medical College and Hospital, Chicago.
Dallas (Texas) Medical College, merged into the Baylor University College of Medicine, Dallas, Texas.

1905

Medical College of Indiana and the Central College of Physicians and Surgeons, both of Indianapolis, merged with the Fort Wayne College of Medicine, forming the Indiana Medical College, School of Medicine of Purdue University, Indianapolis.
The College of Physicians and Surgeons of Kansas City, Kansas, the Medico-Chirurgical College of Kansas City, Mo., and the Kansas City (Missouri) Medical College merged into the Central Medical College of the University of Kansas.
The Central Medical College of the University of Kansas, both of St. Joseph, Mo., united to form the Ensworth-Central Medical College, which has since resumed the name of Ensworth Medical College.

1907

The State College of Physicians and Surgeons, Indianapolis, was taken over by the Indiana University School of Medicine as its clinical department.
The Louisville Medical College and the Hospital College of Medicine, both of Louisville, Ky., united to form the Louisville and Hospital Medical College.
The Kentucky University Medical Department was merged into the University of Louisville Medical Department.
The Starling Medical College and the Ohio Medical University of Columbus, Ohio, merged, forming the Starling-Ohio Medical College.

1908

Indiana Medical College, School of Medicine of Purdue University, Indianapolis, was merged into the Indiana University School of Medicine.
Keokuk (Iowa) Medical College, College of Physicians and Surgeons, merged into Drake University College of Medicine, Des Moines, Iowa.
Kentucky School of Medicine and the Louisville and Hospital Medical College were both merged into the University of Louisville Medical Department.
Minneapolis College of Physicians and Surgeons, the Medical Department of Hamline University, was merged into the University of Minnesota, College of Medicine and Surgery.

1909

The University of Southern California College of Medicine was taken over by the University of California as its Los Angeles Medical Department.
The Medical College of Ohio and the Miami Medical College merged, forming the Ohio-Miami Medical College of the University of Cincinnati.
The University of Nashville Medical Department and the University of Tennessee Medical Department united to form the Medical Department of the Universities of Nashville and Tennessee.

1910

Denver and Gross College of Medicine has united with the University of Colorado, School of Medicine.
Illinois Medical College has been merged into the Bennett Medical College, which is now the Medical Department of Loyola University.
The Cleveland College of Physicians and Surgeons has been merged into the Western Reserve University Medical Department.
Pulte Medical College of Cincinnati, Ohio, has been moved to Cleveland and united with the Cleveland Homeopathic Medical College, forming the Cleveland-Pulte Medical College.

COLLEGES SUSPENDED

1900

National Normal University, College of Medicine (Ohio).

1901

Northwestern University, Chicago, Ill.
Beaumont Hospital Medical College, Detroit, Mich.
Marion-Sims College of Medicine, St. Louis, Mo.
Columbian Medical College, Kansas City (Missouri).
Cincinnati College of Medicine and Surgery.

1902

Denver College of Medicine (Colorado).
Gross Medical College (Colorado).
Dunham Medical College, Chicago.
Hahnemann Medical College of Kansas City University (Missouri).
Kansas City Homeopathic Medical College (Missouri).

1903

Saginaw Valley Medical College (Michigan).
Woman's Medical College, Kansas City (Missouri).
Laura Memorial Woman's Medical College, Cincinnati, (Ohio).
National University, Medical Department (D. C.).
Medical Department of State University (Kentucky).

1904

Chicago Homeopathic Medical College.
Twentieth Century Physio-Medical College (Oklahoma).
Chattanooga National Medical College (Tennessee).
Dallas Medical College (Texas).

1905

Harvey Medical College, Chicago (Illinois).
Medical College of Indiana.
Central College of Physicians and Surgeons (Indiana).
Fort Wayne College of Medicine (Indiana).
College of Physicians and Surgeons, Kansas City (Kansas).
Medico-Chirurgical College, Kansas City (Missouri).
Kansas City Medical College (Missouri).
Central Medical College, St. Joseph (Missouri).
Ensworth Medical College, St. Joseph (Missouri).

1907

Dearborn Medical College, Chicago (Illinois).
State College of Physicians and Surgeons (Indiana).
Louisville Medical College.
Hospital College of Medicine, Louisville.
Kentucky University, Medical Department.
Baltimore University School of Medicine.
Michigan College of Medicine and Surgery.
Grand Rapids Medical College (Michigan).
Starling Medical College (Ohio).
Ohio Medical University.

1908

Eclectic Medical College of Indiana.
Indiana Medical College.
Keokuk Medical College, College of Physicians and Surgeons (Iowa).
Kentucky School of Medicine.
Louisville and Hospital Medical College.
Minneapolis College of Physicians and Surgeons.
Oklahoma Medical College.
Physio-Medical College of Texas.
Gate City Medical College.

1909

University of Southern California, College of Medicine.
Denver College of Physicians and Surgeons.
National Medical University, Chicago.
Physio-Medical College of Indiana.
Sioux City College of Medicine.
University of Minnesota, College of Homeopathic Med. and Surg.
Homeopathic Medical College of Missouri.
Nebraska College of Medicine.
Medical College of Ohio.
Miami Medical College.
University of Nashville, Medical Department.
University of Tennessee, Medical Department.
University of the South.

1910

Epworth College of Medicine.
Chattanooga Medical College.
* Closed by merger.
1. Exposed as fraudulent.
2. Declared not in good standing by the Illinois State Board of Health.

NEW COLLEGES

1900

Eclectic Medical College of Indiana, Indianapolis, Ind.
Hahnemann Medical College of the Kansas City (Missouri) University.
Twentieth Century Medical College, Guthrie, Okla.
Knoxville Medical College, Knoxville, Tenn.
University of West Tennessee, Medical Department, Memphis.
Dallas Medical College, Dallas, Tex.
University of Dallas, Medical Department, Dallas, Tex.
(Now the Baylor University, College of Medicine).

1901

Chicago Eclectic Medical College.
(Now the Chicago College of Medicine and Surgery).
Marion-Sims-Beaumont College of Medicine, St. Louis.
(Now the St. Louis University, School of Medicine).
Temple University Department of Medicine, Philadelphia.

1902

Oakland College of Medicine and Surgery, Oakland, Cal.
Denver and Gross College of Medicine, Denver, Colo.
Kansas City Hahnemann Medical College, Kansas City, Mo.
Wake Forest College, School of Medicine, Wake Forest, N. C.
Gate City Medical College, Texarkana, Tex.
Physio-Medical College of Texas, Dallas, Tex.
West Virginia University, College of Medicine, Morgantown.

1903

College of Physicians and Surgeons, Los Angeles, Cal.
Dearborn Medical College, Chicago.*
University of Mississippi, Medical Department, Oxford.
Bell Medical College (later the College of Physicians and Surgeons)
Dallas, Tex.*
Southwestern University Medical College, Dallas, Tex.

1904

International Medical Missionary College, Atlanta, Ga.*
Epworth College of Medicine, Oklahoma City, Okla.*

1905

Atlanta School of Medicine, Atlanta, Ga.
Indiana Medical College, Indianapolis.††
(Another college by the same name was organized in 1869).
Indiana University School of Medicine, Bloomington.
Ensworth Central Medical College, St. Joseph, Mo.‡
(Has since resumed the name of Ensworth Medical College).
Nebraska College of Medicine, Lincoln, Neb.*
Fordham University School of Medicine, New York City.
University of North Dakota, College of Medicine.

1906

College of Physicians and Surgeons, Little Rock, Ark.
State College of Physicians and Surgeons, Indianapolis.†
Mississippi Medical College, Meridian, Miss.
College of Physicians and Surgeons, Memphis, Tenn.
University of Utah, Department of Medicine.

1907

Reliance Medical College, Chicago.
Louisville and Hospital Medical College, Louisville, Ky.††
Hippocratean College of Medicine, St. Louis.*
Starling-Ohio Medical College, Columbus, Ohio.‡
Oklahoma Medical College, Oklahoma City, Okla.*
University of South Dakota, College of Medicine.
University of Wisconsin, Medical School.
Philippine Medical School, Manila, P. I.

1908

Hospital Medical College, Atlanta, Ga.
College of Medical Evangelists, Loma, Linda, Cal.
Ohio-Miami Medical College of the University of Cincinnati.†
Universities of Nashville and Tennessee, Medical Department.†

1910

Cleveland-Pulte Medical College, Cleveland, Ohio.‡

* Has since become extinct.

† Closed later by merger.

‡ Organized by merger.

COLLEGE NOTES

Endowments and New Buildings

Connecticut.—Yale University received \$500,000 through a bequest from the late Levi I. Shoemaker, of Wilkes-Barre, for the use of the Yale Medical School.

California.—Cooper Medical College, San Francisco, received \$5,000 through the will of Mrs. Myrick.

Illinois.—A new building for Bennett Medical College, now the Medical Department of Loyola University, Chicago, has been erected at a cost of \$60,000, this sum being contributed by physicians.

Iowa.—A sum of \$150,000 was raised by popular subscription for Drake University College of Medicine, Des Moines, to make needed improvements and for current expenses.

Maryland.—The new Phipps Dispensary has been erected on the hospital grounds of Johns Hopkins University Medical School at a cost of approximately \$500,000.

Minnesota.—Three new buildings have been erected for the College of Medicine of the University of Minnesota at a total cost of \$565,000. One of these was the Elliott Hospital, named after Dr. A. F. Elliott, through whose bequest of \$125,000, supplemented by \$40,000 from an appropriation by the state legislature, the building was erected. The two other buildings were the new Institute of Anatomy and a new medical building, each costing approximately \$200,000.

Missouri.—St. Louis University, School of Medicine, was the recipient of \$20,000 from Ambassador Richard C. Kerens, to be used as an endowment fund for free beds in the Rebekah Hospital.

Approximately \$3,000,000 was received by Washington University Medical Department from William K. Bixby, Adolphus Busch, Edward Mallinkrodt and Dr. Robert S. Brookings, for the construction of the new medical buildings on Kings Highway. Counting the value of the hospitals which were also transferred to Washington University, the entire gift came to about \$6,000,000.

Nebraska.—Plans have been accepted for the new group of medical buildings to be erected at Omaha for the College of Medicine of the University of Nebraska.

The John A. Creighton Medical College has erected a new medical building on Fourteenth Street, at a cost of \$60,000.

New York.—Columbia University, College of Physicians and Surgeons, received approximately \$3,000,000 from William K. Vanderbilt, George J. Gould, Frank A. Munsey and others, to be used in the erection of new medical buildings adjoining the University Campus at Morningside Heights. Another gift of \$15,000 was received from William D. Sloan to erect a new addition to Sloan Maternity Hospital and \$18,000 was received from the children of Dr. Abraham DuBois, who was a graduate of the College of Physicians and Surgeons, for the establishment of a fellowship in memory of their father.

A new addition to the building of the University and Bellevue Hospital Medical College has been erected at a cost of \$65,000. Also a gift of \$100,000 was received from Mrs. Helen Hartley Jenkins to endow the chair of medicine.

Section by section the old Long Island College Hospital has been torn down and replaced by a new strictly modern structure. The last section is now approaching completion. The cost of the new structure was approximately \$2,000,000.

A new building is being erected by Fordham University School of Medicine, which will cost about \$1,000,000 when completed.

Donations amounting to \$25,000 have been received by the New York Homeopathic Medical College, to be used for changes in the college building and for the improvement of the laboratories.

Cornell University received \$50,000 from Andrew Carnegie to be used in the enlargement of the laboratory for chemical research.

Ohio.—Western Reserve University received \$250,000 from Mr. H. M. Hanna, as an addition to the endowment of the medical department. The income will be used to place the clinical professorships on a modern university basis.

A fund of \$45,000 was donated by the friends of the late Dr. Eichberg, to endow the Joseph Eichberg chair of physiology in the Ohio-Miami Medical College of the University of Cincinnati. The chair was established last December (1909).

A new college building has been erected by the Eclectic Medical Institute (now College), Cincinnati, at a cost of \$50,000.

Pennsylvania.—Gifts amounting to \$800,000 were received by the University of Pennsylvania for the endowment of the Henry Phipps Institute for the study and prevention of tuberculosis and for the endowment of the clinical chairs. A new addition to the University of Pennsylvania Hospital was opened May 12, which was built at a cost of \$37,000.

A new college building is now being erected by the Medical Department of the University of Pittsburgh. The approximate cost when completed will be \$200,000.

Jefferson Medical College received \$60,000 from Mrs. Maria Gross Horwitz, daughter of the late Dr. Samuel D. Gross, for the purpose of founding a chair of surgery, in memory of her father. Another gift from Daniel Baugh, a member of the board of trustees, is the property including the building formerly occupied by the Pennsylvania Dental School, which is valued at \$50,000.

South Carolina.—The medical building of the Medical College of the State of South Carolina has been extensively remodeled.

Vermont.—The Vermont legislature gave \$10,000 to the University of Vermont to enable it to assume full responsibility, financially and otherwise, for the Medical Department.

Virginia.—A sum of \$10,000 has been donated toward the new building for the University College of Medicine, Richmond, to replace the one destroyed by fire last January.

Canada.—New medical buildings, at a cost of \$750,000, have been erected by McGill University to replace the one destroyed by fire in 1907. Lord Strathcona, who donated the site on which the building was erected, also gave \$500,000 toward the building itself.

Full Time Instructors.—The Atlanta College of Physicians and Surgeons has just added to its faculty three full-time, salaried instructors. Dr. Justin F. Grant, professor of anatomy and pathology in the medical Department of the University of West Virginia, has been secured for the chair of anatomy; Dr. George Bachman, associate professor of physiology in the Jefferson Medical College of Philadelphia, for the chair of physiology and Dr. John Funke, of Jefferson Medical College of Philadelphia, as adjunct professor of pathology, bacteriology and hygiene.

Special Preliminary Year.—A special preliminary year devoted to physics, chemistry, biology and modern languages has been established by several medical colleges, including Fordham University, School of Medicine; St. Louis University, School of Medicine and Ohio-Miami Medical College of the University of Cincinnati.

COLLEGES LISTED AS ACCEPTABLE (CLASS A)

By the Council on Medical Education of the American Medical Association

1. Giving a complete four-year course:

- ALABAMA**
University of Alabama Medical Department.
- CALIFORNIA**
Leland Stanford Junior University Medical Department (Cooper Medical College).
University of California, Medical Department, San Francisco-Los Angeles.
- COLORADO**
Denver and Gross College of Medicine.
University of Colorado, School of Medicine.
(These two colleges have been merged and will constitute the School of Medicine of the University of Colorado.)
- CONNECTICUT**
Yale Medical School.
- DISTRICT OF COLUMBIA**
George Washington University, Department of Medicine.
Georgetown University, School of Medicine.
- ILLINOIS**
Northwestern University Medical School.
Rush Medical College, University of Chicago.
College of Physicians and Surgeons, Chicago.
Hahnemann Medical College and Hospital, Chicago.
- INDIANA**
Indiana University School of Medicine.
- IOWA**
State University of Iowa, College of Medicine.
State University of Iowa, Homeopathic College.
Drake University, College of Medicine.
- KANSAS**
University of Kansas, School of Medicine.
- KENTUCKY**
University of Louisville, Medical Department.
- LOUISIANA**
Tulane University of Louisiana, Medical Department.
- MAINE**
Medical School of Maine.
- MARYLAND**
Johns Hopkins University of Medicine and Surgery.
University of Maryland, College of Physicians and Surgeons, Baltimore.
Baltimore Medical College.
- MASSACHUSETTS**
Boston University, School of Medicine.
Harvard Medical School.
Tufts College Medical School.
- MICHIGAN**
University of Michigan, Department of Medicine and Surgery.
University of Michigan, Homeopathic College.
Detroit College of Medicine.
- MINNESOTA**
University of Minnesota, College of Medicine and Surgery.
- MISSOURI**
St. Louis University, School of Medicine.
Washington University Medical Department.
University Medical College, Kansas City.
- NEBRASKA**
Creighton Medical College.
University of Nebraska, College of Medicine.
- NEW HAMPSHIRE**
Dartmouth Medical School.
- NEW YORK**
Albany Medical College.
Columbia University, College of Physicians and Surgeons.
Cornell University Medical College.
Fordham University, School of Medicine.
Long Island College Hospital.
New York Homeopathic Medical College and Hospital.
Syracuse University, Medical Department.
University and Bellevue Hospital Medical College.
University of Buffalo, Medical Department.
- OHIO**
Ohio-Miami Medical College, Medical Department, University of Cincinnati.
Starling-Ohio Medical College.
Western Reserve University, Medical Department.

- OREGON**
University of Oregon, Medical Department.
- PENNSYLVANIA**
Hahnemann Medical College and Hospital, Philadelphia.
University of Pennsylvania, Medical Department.
University of Pennsylvania, Medical Department.
University of Pennsylvania, Medical Department.
- TENNESSEE**
Vanderbilt University, Medical Department.
- TEXAS**
University of Texas, Medical Department.
- VERMONT**
University of Vermont, College of Medicine.
- VIRGINIA**
Medical College of Virginia.
University College of Medicine.
University of Virginia, Department of Medicine.

2. Giving a two-year course acceptably:

- MISSISSIPPI**
University of Mississippi, Medical Department.
- MISSOURI**
University of Missouri, Medical Department.
- NORTH CAROLINA**
University of North Carolina College of Medicine.
Wake Forest College, Medical School.
- NORTH DAKOTA**
University of North Dakota, College of Medicine.
- OKLAHOMA**
University of Oklahoma, School of Medicine.
- SOUTH DAKOTA**
University of South Dakota, College of Medicine.
- UTAH**
University of Utah, Department of Medicine.
- WEST VIRGINIA**
West Virginia University, Department of Medicine.
- WISCONSIN**
University of Wisconsin, College of Medicine.
- 3. Medical Schools for the Colored Race:**
Howard University, Medical Department, Washington, D. C.
McHarry Medical College, Nashville, Tenn.

PROPORTION OF PHYSICIANS TO POPULATION

Figures for population from 1908 estimated by the Census Bureau; for the number of physicians from the second edition of the American Medical Directory.

State.	Population.	Physicians..	People to Each Physician.
Alabama	2,112,465	2,287	924
Arizona	154,152	246	626
Arkansas	1,476,582	2,535	583
California	1,729,543	4,313	401
Colorado	653,506	1,690	386
Connecticut	1,054,366	1,424	740
Delaware	199,353	220	906
District of Columbia	322,212	1,231	262
Florida	679,742	786	865
Georgia	2,557,412	2,887	886
Idaho	227,070	343	664
Illinois	5,717,229	9,744	587
Indiana	2,808,115	5,036	557
Iowa	2,192,608	3,624	605
Kansas	1,703,002	2,650	642
Kentucky	2,406,859	3,708	649
Louisiana	1,618,358	1,798	900
Maine	724,508	1,198	605
Maryland	1,319,132	2,012	655
Massachusetts	3,162,347	5,577	567
Michigan	2,666,308	4,109	649
Minnesota	2,162,726	2,204	981
Mississippi	1,786,773	2,054	870
Missouri	3,491,397	6,323	552
Montana	333,695	417	800
Nebraska	1,069,579	1,776	602
Nevada	42,335	177	239
New Hampshire	443,140	680	652
New Jersey	2,352,522	2,544	925
New Mexico	229,937	367	626
New York	8,706,039	14,117	617
North Carolina	2,142,084	1,761	1,216
North Dakota	536,103	552	971
Ohio	4,594,240	7,838	585
Oklahoma	1,592,401	2,703	581
Oregon	505,339	782	646
Pennsylvania	7,241,716	11,056	655
Rhode Island	521,302	720	724
South Carolina	1,510,566	1,141	1,324
South Dakota	498,077	607	820
Tennessee	2,248,404	3,303	681
Texas	3,780,574	5,789	653
Utah	336,122	359	908
Vermont	353,739	663	533
Virginia	2,032,567	2,215	917
Washington	662,886	1,404	616
West Virginia	1,135,206	1,608	706
Wisconsin	2,356,874	2,518	936
Wyoming	109,244	202	541
U. S. Army, Navy and M.-H. Service		915	...
Total	88,943,455	134,402	655

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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[For other information see second page following reading matter

SATURDAY, AUGUST 20, 1910

MEDICAL EDUCATION IN THE UNITED STATES

The tabulated statistics herewith presented (pages 682 to 690) are for the year ending June 30, 1910, and are based on signed reports received directly from the medical colleges, or from other reliable sources. We wish here to acknowledge the courtesy and cooperation of the officials of the medical colleges which have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES

On pages 682 to 684 is Table 1, which gives all the colleges in session during 1909-10, the population of the city in which each college is located, the number of students, men and women, registered during the year, the number of 1910 graduates, men and women, the number of graduates holding collegiate degrees, the number of teachers for each college, the number of weeks of actual work in the college year, the total fees for each year, the executive officer of the college and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 667 are given essential facts concerning all medical colleges, arranged by states.

NUMBER OF MEDICAL STUDENTS

The total number of medical students (matriculants) in the United States for the year ending June 30, 1910, excluding special students, was 21,526, a decrease of 619 below 1909, a decrease of 1,076 below 1908, and a decrease of 6,616 below 1904, when the highest number of students was enrolled. It is the lowest number since THE JOURNAL began compiling these statistics in 1900. Of the total number of students, 20,136 were in attendance at the regular colleges, 867 at the homeopathic, 455 at the eclectic, 49 at the physiomedical and 19 at unclassifiable colleges. The attendance at the regular colleges shows a decrease of 418 below that of last year, of 800 below 1908 and 2,167 below 1907. In the homeopathic colleges there was a decrease of 32 below the attendance of 1909. The eclectic colleges show an increase of 42 over 1909, but a decrease of 24 below 1908 and of 90 below 1907. The physiomedical colleges had 49 this year, as compared with 52 in 1909 and 90 in 1908.

TABLE 4.—MEDICAL COLLEGE ATTENDANCE

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Non-descript.	Total.
1880.....	9,776	1,220	830	...	...	11,826
1890.....	13,521	1,104	719	...	...	15,404
1900.....	22,710	1,509	522	...	...	25,171
1901.....	23,846	1,683	661	80	144	26,417
1902.....	24,878	1,617	765	91	150	27,501
1903.....	24,930	1,498	848	149	190	27,615
1904.....	23,662	1,309	1,014	123	234	28,142
1905.....	24,119	1,104	578	114	232	26,147
1906.....	23,116	1,085	644	110	249	25,204
1907.....	22,303	1,030	545	97	262	24,276
1908.....	20,936	891	479	50	206	22,602
1909.....	20,554	899	413	52	227	22,145
1910.....	20,136	867	455	49	19	21,526

GRADUATES

The total number of graduates for the year ending June 30, 1910, was 4,436, a decrease of 6 below 1909, a decrease of 305 below 1908 and of 544 below 1907. It is the lowest number graduating since THE JOURNAL began compiling these statistics, and is 1,311 less than in 1904, when there were 5,747 graduates. The percentage of graduates to matriculants was 20.7, as compared with 20.1 in 1909 and 21.0 in 1908. The number of graduates from the regular colleges was 4,113, or 23 more than in 1909, but 257 less than in 1908. From the homeopathic colleges there were 179 graduates, or 30 less than in 1909 and 36 less than in 1908. The eclectic colleges graduated 114, or 30 more than last year but 2 less than in 1908. The physiomedical colleges had 16 graduates this year, as compared with 15 last year and 12 in 1908.

TABLE 5.—MEDICAL COLLEGE GRADUATES

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Non-descript.	Total.
1880.....	2,673	380	188	..	..	3,241
1890.....	3,553	380	221	..	..	4,454
1900.....	4,715	413	86	..	..	5,214
1901.....	4,879	387	148	18	12	5,444
1902.....	4,498	336	138	16	11	4,990
1903.....	5,088	420	149	24	17	5,698
1904.....	5,190	371	146	20	20	5,747
1905.....	5,126	276	153	22	23	5,600
1906.....	4,841	286	186	22	39	5,364
1907.....	4,591	225	121	11	32	4,980
1908.....	4,370	215	116	12	28	4,741
1909.....	4,050	209	84	15	44	4,442
1910.....	4,113	179	114	16	14	4,436

Of the 4,436 medical graduates, 680, or 15.3 per cent., were reported to hold also degrees in arts or science, as compared with 15.6 per cent. in 1909 and 17.3 per cent. in 1908. Although, in recent reports on medical education, Illinois is referred to in rather uncomplimentary terms on account of its having a number of inferior medical schools, this clearly does not apply to all the Illinois colleges, since of the 680 medical graduates holding collegiate degrees, 133, or about 20 per cent., came from Illinois colleges. It is expected that in the future the percentage of college graduates entering medicine will increase rather than decrease, since more medical schools are requiring some college work for admission.

WOMEN IN MEDICINE

During the past year there were 907 women studying medicine, a decrease of 14 below 1909, but an increase of 72 over 1908. The percentage of all medical students

was 4.2, the same as last year. There were 157 women graduates this year, or 3.5 per cent., of all graduates. In 1909 there were 921 women students and 162 graduates, while in 1908 there were 835 women students and 185 graduates. Of all the women matriculants, 155 (17.1 per cent.) were in attendance at the 3 medical colleges for women, as compared with 169 (18.4 per cent.) in 1909 and 186 (22.3 per cent.) in 1908. From the 3 women's colleges, there were 41, or 26.1 per cent., of all women graduates, as compared with 33 (20.3 per cent.) in 1909 and 46 (24.9 per cent.) in 1908. The remaining 752 (82.9 per cent.) were matriculated in coeducational colleges.

TABLE 6.—WOMEN IN MEDICINE

Year.	Total women students.	Percentage of all students, both sexes.	Total women graduates.	Percentage of all graduates, both sexes.	Women's colleges.	Students.	Percentage of all women students.	Graduates.	Percentage of all women graduates.	Co-ed. schools.	Students.	Percentage of women students.	Graduates.	Percentage of women graduates.
1901	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	193	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	163	75.5
1906	895	3.5	233	4.3	3	183	21.0	33	14.1	70	706	79.0	200	83.9
1907	923	3.8	211	4.3	3	210	22.6	39	18.5	66	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	166	22.3	46	24.9	83	649	77.7	139	75.1
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
1910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.9

NUMBER OF COLLEGES

Since June 30, 1909, 12 colleges (mentioned on page 691) have either suspended or have merged into others and 1 new college was established, making a net decrease of 11 colleges since last year, the total now being 133. The regular colleges number 111, a decrease of 6 since last year. The homeopathic colleges number 13, a decrease of 1. Of the eclectic colleges, 1 was reorganized recently as a regular college, leaving 7. There is now only 1 physiomedical college and 1 school which is unclassifiable since it offers to teach two or more systems of medicine.

TABLE 7.—MEDICAL COLLEGES

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Non-descript.	Total.
1880.....	72	12	6	..	..	90
1890.....	93	14	9	..	..	116
1900.....	121	22	3	..	..	151
1901.....	124	21	10	..	..	155
1902.....	121	20	10	3	2	156
1903.....	121	19	10	3	1	154
1904.....	133	19	10	3	1	166
1905.....	129	13	9	3	1	160
1906.....	130	13	9	3	1	161
1907.....	131	17	8	3	2	161
1908.....	123	10	8	3	3	152
1909.....	117	14	8	1	3	143
1910.....	121	13	7	1	1	143

During the past ten years, 70 medical colleges (see page 691) have ceased to exist, either through merger or otherwise. During the same time, however, 50 new colleges have been organized, leaving a net decrease of 20. While the total number of colleges is smaller, the percentage of higher-grade, stronger medical colleges has been considerably increased.

LENGTH OF TERMS

The length of term of each college fluctuates somewhat from year to year, but on the whole, during the last several years there has been a decided lengthening of college terms. This has reference to the weeks of actual work, inclusive of holidays. Only 2 colleges this year report sessions shorter than twenty-seven weeks, as compared with 4 last year. In 1901 there were 58 which held sessions of less than twenty-seven weeks. Of those having sessions of twenty-seven or twenty-eight weeks, the number is 8 this year, or 9 less than last year, and 38 less than in 1903. There are 19 colleges claiming courses of twenty-nine or thirty weeks of actual work, and 42 claiming courses of thirty-one or thirty-two weeks. One hundred and two, or over 76 per cent., of all colleges now claim to require from 31 to 36 weeks of actual work, exclusive of holidays, as compared with 30 per cent. in 1901, with 42 per cent. in 1904, and 68 per cent. last year. The 2 colleges claiming courses longer than thirty-six weeks are night schools. It would doubtless require twelve or fourteen years of the usual night-school study, however, to secure the equivalent of four years of thirty weeks each in the better day colleges.

TABLE 8.—COLLEGE TERMS

Year.	23 to 26 weeks.		27 to 28 weeks.		29 to 30 weeks.		31 to 32 weeks.		33 to 34 weeks.		35 to 36 weeks.		Ov. 36 weeks.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	33	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	42	26.1	24	14.9	23	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	23	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	20	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5

TUITION AND OTHER FEES

Special attention is called in Table 1 to the total amount charged by the various colleges for tuition, matriculation, laboratory and graduation fees *per annum* for each student. In Table 9, the 133 colleges have been grouped according to the amount of fees charged.

TABLE 9.—COLLEGE FEES

Total Fees.	Number of Colleges.			
	Class A.*	Class B.	Class C.	Total.
\$ 50 or less.....	5	1	1	7
50 to \$ 75.....	9	..	3	12
75 to 100.....	5	7	15	27
100 to 125.....	17	14	6	37
125 to 150.....	13	4	3	20
150 to 175.....	8	3	..	11
175 to 200.....	6	2	..	8
200 or above.....	6	..	..	6

* Based on the classification of medical colleges prepared by the Council on Medical Education.

Nineteen charge fees of \$75 or less per year, 64 colleges charge between \$75 and \$125, 36 charge between \$125 and \$175, and 14 colleges charge above \$175. Of

the 19 colleges charging \$75 or less, 14 or 74 per cent. have been listed among Class A (acceptable) colleges by the Council on Medical Education.¹ Among these colleges are the schools of medicine of the state universities of Colorado, Iowa, Mississippi, Missouri, North Carolina, North Dakota, South Dakota, Utah and West Virginia. On the other hand, 24 colleges listed by the Council in Class C charge fees of over \$100 per year for each student. This clearly refutes the assertion made by some inferior colleges that they are needed for the sake of "the poor boy who wants to study medicine." Although 20 colleges listed in Class A charge fees ranging from \$150 to \$275 per year for each student, the actual expense for teaching that student in these colleges ranges from \$300 to \$600 or even more per year.

DISTRIBUTION OF MEDICAL STUDENTS

Table 2, on pages 686 to 689, shows from what states the students come who were in attendance at each medical college during the session of 1909-10. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges. A comparison of this table with the large tables based on state board examinations² which show the distribution of the alumni of each college, is interesting. The college which has widely distributed alumni usually has a student body from an equally large number of states.

Only one state contributed over 2,000 students this year, this being New York with 2,120. Pennsylvania contributed 1,990 and Illinois 1,959. The next states, in the order of the number of students contributed, are: Ohio, 902; Massachusetts, 809; Missouri, 807; Texas, 719, and Iowa, 702. Four states had less than 20 each, these being New Mexico and Wyoming, each 11, Nevada 6 and Arizona 5. There were 54 students from Hawaii, Porto Rico and the Philippine Islands, and 563 students from foreign countries.

MIGRATION OF MEDICAL STUDENTS

Table 3, on page 690, shows the number of students of each section of the country who attended medical schools of that section and the number who attended medical colleges of other sections. Section A gives the figures for students from the eastern states; Section B, for students from the middle states; Section C, for students from the western states, and Section D, for students from the southern states. Figures are given for the three college years, 1907-8, 1908-9 and 1909-10. The differences in the figures for the three years show the fluctuation due to the exit of the graduating classes, to the ingress of the new freshmen and to the comparatively few who left the colleges of one section

and went to those of other sections. At the bottom of Section D appear the average totals for the three years. Percentages are given in order to permit of comparisons. The eastern section has long held the largest place in medical education, and, as would be expected, still has the smallest percentage of students leaving to attend colleges in other sections, the percentage of those remaining in the eastern section being 92.1. The middle states are a close second, with 90.6 per cent. of their own resident students studying medicine in that section. The western section, having the smallest number of colleges, naturally has a larger proportion of students attending in other sections. Of the students who migrate from the middle and southern sections, the largest proportions go east, while of those from the western section, the largest proportion attends colleges of the middle section. Altogether 2,555 students attended colleges outside of the section in which they lived. Of this number, 1,092, or 42.7 per cent., went to the eastern section; 1,020, or 39.9 per cent., went to the middle section; 304, or 11.9 per cent., went to the southern section, and 139, or 5.5 per cent., went to the western section.

THE YEAR IN MEDICAL EDUCATION

The special features of the past year in medical education have been the publication of a classified list of medical colleges by the Council on Medical Education after a six years' investigation, and the publication of the report on medical education by the Carnegie Foundation for the Advancement of Teaching. The report of the Carnegie Foundation, which is more severe than that of the Council, bears out the claim of the latter that its markings were very lenient. The publication of these two reports is sure to result in good to medical education. Prospective medical students now have the information that will enable them to select the better colleges, and, therefore, colleges which adhere to reasonably high standards, and are fairly well equipped, will be benefited. These reports show how each college ranks as compared with other colleges; the needed improvements have been pointed out and the way has been opened for further development.

A survey of the entire field of medical education shows that marked progress has been made during the last few years. As is noted in another column,³ there are 35 colleges which after this fall will be requiring one or more years of collegiate work for admission, and eight state licensing boards which have adopted similar requirements. Numerous mergers of medical colleges have been brought about, better equipped laboratories have been provided, better trained teachers have been employed, new buildings have been erected and increased endowments secured. The outlook for the future of medical education in this country is indeed most encouraging.

1. For complete classification see THE JOURNAL A. M. A., June 18, 1910, pp. 2061 and 2062.

2. THE JOURNAL A. M. A., May 21, 1910, p. 1740.

3. Pages 680 and 681.

ANOTHER MEDICAL JOURNAL PREFERS DECENCY
TO DOLLARS

The medical journal which, being the official organ of either a state or national organization and having the financial and moral support of the organized profession it represents, decides to throw out the advertisements of all preparations exploited dishonestly and untruthfully, deserves credit. The owners of a medical journal who, at the height of a campaign for clean advertising, when enthusiasm runs high and before the experiment has been tried out, decide to do the same thing, deserve even greater credit—although the spectacular element tends to qualify it. But the owners of a medical journal who, after seeing the experiment tried—with disastrous results in many cases—and knowing the terrific struggle for a journal's mere existence which such a course entails, soberly and calculatingly determine to eliminate from their advertising pages all unworthy medicinal products—such men are making a sacrifice in the interests of truth and decency that is truly heroic.

While this movement for honest advertising of medicinal products is confined to no one section of the country, yet the South seems to be leading. No fewer than three southern medical journals have placed themselves in this class. Two of these¹ have already been referred to in *THE JOURNAL*. The latest one to cross the Rubicon is the *Gulf States Journal of Medicine and Surgery*, which in its June issue states the case in plain, unmistakable terms. After reviewing briefly the sphere which their journal is attempting to fill, the editors say:

We have reached the conclusion that the only way to be absolutely sure to admit no unworthy proprietary medicine advertisement, and that those we do admit will be precisely as advertised, is to accept as final the conclusions of the Council on Pharmacy and Chemistry established by the American Medical Association, and be guided thereby. There can be no doubt of its sincerity. It has done an immense amount of investigation and analysis, and though, being human, it doubtless errs sometimes, yet its opportunities for forming sound opinions exceed by far any other ways at our disposal. Their conclusions, like those of the highest courts of review, are the soundest obtainable.

Then follows this announcement in ten-point capitals:

From this date the *Gulf States Journal of Medicine and Surgery*, journal of the Southern Medical Association, will neither make nor renew a contract for advertising any proprietary medicine which is not recognized by the aforesaid Council.

The editors of this journal are evidently under no delusion as to what such a step means; they realize that to reject 50 per cent. of their present advertising patronage is not a thing to be looked at lightly. They say:

We know what we are doing. We are aware that no medical journal can be self-sustaining without a large advertising list. We know that this step may be the first towards failure. But if we cannot publish a journal whose readers will know that whatever its editors or advertisers say is untainted with either deceit or fraud, without going down in failure, then down we will go! There is no dishonor in such a failure!

1. The Southern Medical Journal and the Old Dominion Journal of Medicine and Surgery. The former now has but one advertisement to which objection can be raised, while the latter has but two.

But we shall not fail! Southern doctors want the sort of medical magazine that we desire to supply, and they will stand up to us through this fight. As rapidly as the circumstances will admit, our readers will observe the change in our advertising pages.

Sink or swim, survive or perish, we have planted the standard of the *Journal* on the heights, and shall stand by it.

The problem is now "up to" the medical profession of the South. We believe that a section of the country which produces such editors as these also produces men who will support the principles these editors stand for. The South, in leading the country in this fight for decency and truth, has merely lived up to its traditions; and we believe that, in placing principles before pelf and conscience before commercialism, it is putting itself in the vanguard of journalistic progress. We would urge every physician to show in a concrete way his appreciation of the stand that has been taken. Subscribe for these journals²; a large and influential subscription list assures a liberal advertising patronage and this in turn makes possible a virile and aggressive journal.

The time has come when the medical profession must wake up to a fact that it has very largely ignored in the past: It costs money to publish a medical journal. If physicians—in whose interests these journals are published—are not willing to support them, the proprietary people stand ready to relieve physicians of the necessity of doing so. But—and this is the crux of the whole matter—the journals will naturally favor, and advocate if necessary, the interests from which they receive their chief support. If the medical profession wants really independent medical journals—independent of all interests except those they are supposed to represent—it must pay for them.

VISUAL TESTS AND THE PUBLIC SERVICES OF
THE UNITED STATES

The prevention of accidents in connection with transportation systems is an important subject for the attention of the medical profession. Owing to the rapid growth of the country the railroad trackage and the system of waterways have grown almost beyond belief. As one result, the regulation of a number of details looking to the protection of the public has not as yet received that attention which its relative importance deserves. Such progress as has been made is largely due to the labors of committees appointed by the American Medical Association and its sections. As an instance the Section on Ophthalmology of the American Medical Association, through a committee, devoted several years to the accumulation of statistics gathered from the important railways of this country, and finally adopted a set of well-matured resolutions embodying rules to govern the visual and hearing tests of transportation employees which were approved by the House

2. The Gulf States Journal of Medicine and Surgery, 905 Van Antwerp Bldg., Mobile, Ala., \$2.00 a year; the Southern Medical Journal, 150 Fourth Avenue North, Nashville, Tenn., \$2.00 a year; the Old Dominion Journal of Medicine and Surgery, 116 East Franklin Street, Richmond, Va., \$2.00 a year.

of Delegates. The regulations they suggested have been adopted by practically all the leading railroads.

In line with this work the chairman in his address¹ before the Section on Ophthalmology at St. Louis, after investigation, reviewed the visual requirements in branches of the public service in which definite standards of vision are essential. These are, chiefly, the United States Army, United States military and naval academies, mercantile marine, the Revenue Cutter Service, the life-saving department, the officials of the Coast and Geodetic Survey and pilots in both the federal and some of the state and municipal services.

One result of this activity was definitely to draw the attention of the War Department to the matter. The Surgeon-General of the Army has appointed a commission, including the chairman of the Section on Ophthalmology, to draft a new series of visual requirements for the United States Army. After careful consideration of the subject and after comparison with standards now in operation in the British and Continental services, the commission drew up a series of requirements that will shortly be submitted for the approval of the General Staff.

In the course of the inquiry into the legal requirements as to vision of mercantile marine pilots it was discovered that only officers of steamers and sailing vessels over 700 tons gross and of vessels over 100 tons carrying passengers are under federal supervision. Bar or branch pilots, as they are called, are under state and municipal authority only. In all sections of these services even the meager rules applicable to vision and to visual tests were honored rather in the breach than in the observance. The Surgeon-General of the Marine-Hospital Service, however, has arranged to apply the proper tests and to request the Department of Commerce and Labor, whose function it is to create proper standards for the purpose, to authorize a thorough examination of the sight of applicants for employment in any branch of this service.

This agitation for improved precautionary measures in our merchant marine will, doubtless, exert a beneficial influence on the pilot service of the various states and municipalities. As Dr. Posey shows, there is much room for improvement. The spectacle of a color-blind or short-sighted officer of a sailing or other vessel practicing his profession in a crowded harbor is far from reassuring. Indeed, a number of disasters at sea directly attributable to defective eyesight of the pilot in charge, were cited in the address.

The visual requirements of officials in the other departments of the public service were, with few exceptions, also found to be inadequate.

With these facts before them the Section on Ophthalmology and the House of Delegates adopted resolutions recommending that a committee be appointed to confer

with the Department of Commerce and Labor and with the Marine-Hospital authorities, with a view to establishing proper visual standards and tests to govern these public servants. When this committee has ended its labors we shall not be, as we now are, exposed to the accusation that the United States lags behind other governments in the protection of its seafaring population.

DOCTORS OF PUBLIC HEALTH (D.P.H.)

While much interest is taken and a vast amount of good work is being done in public health matters, yet we have only recently begun to recognize that such work requires the services of a specialist. And while the courses in our medical schools have been gradually lengthened to include training in bacteriology, in the examination of the blood, the secretions and excretions, as well as more or less instruction in hygiene and sanitation, yet our country lacks trained men to carry on public health work. As a rule the general practitioner or the physician who has had the modern medical training, while immeasurably superior to the mere political henchman, has not measured up to the possibilities of the situation as a sanitarian. There have been notable exceptions to this, but they merely point to the rule; and our failure to reap the full harvest in the field of preventive medicine is due to a considerable extent to this cause. The sanitary sciences have given us many new and useful facts, and present health organizations are daily collecting in their reports much valuable information; and still the field, though fitfully tilled by the kind-hearted philanthropist, by the faddist and by the reformer, is permitted to lie fallow most of the time for want of trained experts to make the practical application.

For years the more enlightened nations, with the exception of our own, have required of their health officers special fitness and training for public health work. In the United States, however, no such provision has been required; in fact, no professional school has so far been in a position to equip men with the special knowledge such work demands. To meet this Harvard has taken an advanced step in offering a degree of Doctor of Public Health (D.P.H.), the work for which will center about the new Department of Preventive Medicine and Hygiene. The new degree is a most practical one; it should prove attractive and will, we hope, be offered soon by other schools.

The new course offers wide opportunity for training in several specialized fields of public health work or the sanitary sciences. The course should qualify those who complete it to continue in research; if their temperament and inclinations fit them for original work; to teach the subject, provided they have the gift of pedagogy, or to administer public health affairs provided they have executive ability. Undoubtedly there is a demand for well-trained health officers. The political health

1. Posey, W. C.: Visual Requirements in the Public Services of the United States, THE JOURNAL A. M. A., Aug. 13, 1910, p. 548.

officer is an anachronism, and the day when the gynecologist, the surgeon or the general practitioner, without special training, can successfully take charge of the health of the state is passing away. A board of health composed of untrained men of business or professional affairs is no longer compatible with the increase of special knowledge. The complications of modern life demand acquaintance with this special knowledge, and we welcome this latest addition to the fellowship of the learned and useful professions.

THE PURIFICATION OF WATER BY HYPOCHLORITES

A large variety of chemical substances have been used in experiments on water purification and a few of them have found their way into practical use. We have several times discussed the employment of ozone in the treatment of public water-supplies and have noted that the relatively high expense and the difficulty of securing uniform production are obstacles to the general introduction of the ozone process on a large scale. Recent experience with other methods of water disinfection is, however, more promising.

In sewage disinfection the use of bleaching-powder, an impure product composed largely of calcium hypochlorites, has been studied rather extensively in Germany, and has been the subject of excellent experimental work by Phelps¹ in this country at Red Bank, N. J., and at Baltimore. It was but a step to apply a similar treatment to polluted drinking-water. Already in 1897 bleaching-powder had been used for this purpose in Maidstone, England, at the time of a typhoid epidemic due to a polluted water-supply. The use of bleaching-powder for the purification of the Jersey City water-supply in 1908-9 drew further attention to the process and was the starting-point of the greatly accentuated interest in this subject that has been shown during the past year. The construction and operation of the disinfecting plant were intrusted to a firm of sanitary experts and their report has been received with merited confidence. The degree of purification effected may be judged from the fact that while the number of bacteria in the raw water ranged from 30 up to 1,600 the treated water contained an average of but 15, and in only one sample out of 455 tests was *Bacillus coli* found in the water delivered.

It is not surprising that results like these have given a strong impetus to the use of the bleaching-powder treatment. A number of American cities have already employed the hypochlorite treatment on a large scale. Among these are Harrisburg, Pa., and Quincy, Ill., where the process has been used in conjunction with the application of coagulants and mechanical filtration. Minneapolis, Montreal, Toronto, and recently Milwaukee have made use of the treatment to check outbreaks of water-borne typhoid fever. The rapid spread of this

method of water purification is indeed one of the most interesting and promising developments of the past two years. Up to the present the method has seemed to grow in favor. The great simplicity of the apparatus necessary for applying the disinfectant makes it possible in an emergency to install a small plant within a few days. The exceedingly low cost of the process, which seems to average less than 40 cents per 1,000,000 gallons, constitutes another important advantage. Thus far no serious objection has been brought against the hypochlorite treatment and there has been a surprising unanimity of favorable judgment from all who have had personal experience with it. If we must have sewage in our water, let us disinfect it before drinking.

Current Comment

A HITHERTO UNPUBLISHED TESTIMONIAL

A layman writes to *THE JOURNAL* asking whether the "D.D.D. Prescription" would have any injurious effect on a person using it and says, regarding this nostrum:

"Have used forty-eight bottles of it for eczema and am not rid of it yet."

He wants to know, "whether this medicine could have a tendency to poison one's blood so that one would lose 14 pounds in flesh and become weak and emaciated, flesh soft and flabby and his condition generally miserable, within two months." As this "dandruff cure" contains 38 per cent. of alcohol and 7 grains of chloral hydrate to the ounce, an affirmative answer to our correspondent's query can hardly be called overdrawn. For a product which, before the Food and Drugs Act made lying on the label illegal, was advertised to "positively and permanently cure eczema," its therapeutic action seems rather slow. Would the manufacturers recommend a change in treatment or another round of 48 bottles? In the words of Jack London: "We are curious to know. We are curious to know."

THE UNTRAINED DOCTOR AND THE PUBLIC HEALTH

An editorial with the above caption appeared in the *Chicago Examiner*, August 12, 1910. This paper had published lists of the graduates of several low-grade medical schools of Chicago, who were practicing in Illinois. One of these graduates wrote to the paper expressing "surprise that a newspaper which has always taken the part of the common people against the trusts," should "make common cause with those who are attempting to create a trust in medical education," and saying that "the right to change one's occupation is one of the blessings which free men enjoy, and a man who has been successful in other lines is just as likely to make a successful medical man; and even if he had been a failure in his previous occupation, it would not prove him a failure in the profession he now follows." The newspaper answered that although it acknowledged the fairness of the doctor's argument

1. Phelps: Water-Supply Paper 229, U. S. Geol. Survey, 1909.

and would not think of singling him out to be held up to public distrust; nevertheless it "does not wish its well-known attitude toward the trusts and the people to be confounded with its desire to throw safeguards around the practice of medicine, and it does not subscribe to the doctrine that a shoemaker must invariably stick to his last." The *Examiner* then continues:

Every man is entitled to change his profession as his inclinations and his talents may dictate. But every man is not entitled to enter boldly on the practice of medicine, merely because he has a leaning that way, has given it a little desultory study, and boasts a diploma that has been obtained by questionable methods or by answering a few stereotyped questions. If there is a trust that keeps incompetent people from fooling with the health and lives of the people, the *Examiner* is for that trust, whatever or wherever it may be.

If there are, here and there, men whose remarkable talents have enabled them to rise to deserved eminence in the medical profession without the full medical instruction and preparation considered safe in the practice, there are unhappily hundreds of others who are totally unqualified and unfit for the trust that is reposed in them. And the *Examiner* comes not to call the righteous but sinners to repentance, the sinners being to a notorious extent the so-called graduates of this meager and inadequate course of training.

And so the *Examiner* renews its politest and sincerest assurances of esteem to all who have changed their professions for other lines of duty and the world's work for which they have been properly prepared and qualified. And it will continue to stand for the exercise of the privilege of restraining ignorance, incompetency and lack of preparation in those who jeopardize human health and endanger human happiness for a mere whim or because it seems a little more profitable to the practitioner. If "a little knowledge is a dangerous thing" it is never more dangerous than in experimenting with the art of healing.

THE DANGER OF WOOD ALCOHOL

It has been pretty well understood that wood alcohol is decidedly unsafe to drink; that even its vapor may jeopardize the eye-sight. To the medical profession especially has this danger been emphasized by the excellent researches of Buller and Wood, which were published in *THE JOURNAL*. Now comes Mueller, the German physiologist, who says that pure methyl alcohol is little more poisonous than ethyl alcohol; that it is the impurities which make methyl alcohol poisonous. It is stated that no systematic experiments have heretofore been made to determine the toxic qualities. The deductions of Mueller do not make methyl alcohol any more safe, but they may lead to a method by which it can be manufactured more free from the impurities referred to. One way of stating the case might be that methyl alcohol is naturally denatured in the process of manufacture.

ABATING THE FLY NUISANCE

The domestic or "typhoid" fly is at present receiving much deserved attention on the part of health boards, the newspapers and the public, all of whom seem to be taking the advice to "swat the fly" whenever he raises his pestiferous head. The determination to exterminate this disease-carrier is becoming strong and it will soon be considered as much of a family disgrace to have flies about the house as it now is to have bedbugs. In addition to inhibiting the multiplication of flies by destroy-

ing their breeding-places, a further means has been noted. Dr. Percy L. Jones, of the Army Medical Corps, reports that flies are comparatively rare in the Philippines because of a species of ant which greedily devours the larvæ of the fly, and he has seen them carry away the pupæ. If this ant has no pernicious habits or qualities as obnoxious as those of the fly, the species might be imported and put to work. Entomologists have found that there are many parasites that prey on the fly, principally in the pupal stage, but evidently they are not widely distributed or numerous enough to produce an abatement of the nuisance.

A RIGHTEOUS NEWSPAPER

Not all metropolitan newspapers put the welfare of their readers above the almighty dollar, but the *Chicago Tribune* is one that is doing this. Some years ago it barred from its columns all medical advertisements that it considered fraudulent. During the current week it has boldly published the names of certain "patent medicines" that are dangerous to infants because of the opiates contained in them. Taking the report of Dr. Kebler of the Bureau of Chemistry as its authority, it prints in blackfaced letters the names of the nostrums that are condemned as unsafe, and in addition to publishing this list in several consecutive issues, it has emphasized the matter editorially. McCutcheon aids in damning these deadly nostrums in a forceful cartoon, one picture representing the "quack" or the thoughtless dealer with a bottle of soothing syrup in his hand, saying, "That will make it stop crying; 50 cents, please;" the other representing the sequel—the mother weeping over an empty cradle. What a change would result if even one paper in each large city had the courage to do as the *Tribune* has done in this instance.

FLORENCE NIGHTINGALE

The death of Florence Nightingale at the age of ninety removes one of the most striking figures of the nineteenth century. Born to wealth and luxury, she early showed a taste for the work to which she later gave her life and lost no opportunity of visiting hospitals and studying the care and nursing of the sick. At that time the profession of nursing was not at all a fashionable occupation and had little attraction for a refined and educated lady. As one of Miss Nightingale's biographers has said, it was considered to be a profession which no decent woman of any rank could follow. In spite of this, after examining all the nursing institutions available to her in her own country she went to the Hospital of the Protestant Sisters of Mercy at Kaiserswerth, Germany, and later to the Sisters of St. Vincent de Paul in Paris. When the Crimean War broke out military nursing was practically an unknown art and anyone who has read William H. Russell's account of conditions in the British hospitals near the seat of war can see how different they were from those of modern days. Miss Nightingale's project was spoken of as an undertaking wholly new to English customs. Her work in the hospitals of Scutari and Balaklava was

pioneer work in nursing in military hospitals, but she showed such capacity for management in spite of specially difficult conditions that she made it a success. Modern military nursing, among English-speaking peoples at least, owes its origin to Florence Nightingale. She captured English opinion in spite of the prejudice of a nation which is none too ready to take up with novelties of any kind, and her name has become a household word. Though after the war she was an invalid, her activities did not cease; she was constantly consulted in all matters of nursing for fifty years or more and her writings and utterances have carried weight wherever the English language is spoken. Her advice was sought and taken in hospital construction during our Civil War and during the Franco-Prussian war, and many of the plans for the building and organization of hospitals in England passed through her hands. The training schools for nurses which she established at St. Thomas' Hospital and King's College Hospital in London have been the models for all similar institutions since established in Great Britain and America. As a writer on sanitary subjects she was clear and incisive and her opinions always carried weight. She had also a special capacity for condensing the facts and verbiage of government reports and stating in brief space the important matter they contained. Though little before the public eye, and never courting publicity, but rather avoiding it, she was sought out and honored by the greatest personages in her own country and was the only woman on whom has been conferred the "Order of Merit." It is said that she was always accessible to the workers in the institutions which she founded and always took the liveliest interest in them. Hardly any one of her countrywomen has done work more effective for good or has left behind her a choicer memory.

Medical News

CALIFORNIA

Fighting Tuberculosis in Schools.—The superintendent of the Oakland schools has inaugurated a system of breathing exercises among the pupils with the view of increasing their lung expansion. Some remarkable results have been attained. Not only has the general average of the lung expansion of the pupils been increased but in some instances the expansion has reached six to seven inches. It is found that the girls respond more readily to these exercises than the boys and that the white children show far better results than the Chinese, Japanese or negroes.

Hospitals.—The contract has been let for the construction of five new ward buildings, an administration building and nurses' home for the new public hospital at San Francisco. The cost of the work will be approximately \$220,000. The material used will be brick, marble and terra cotta.—Building has commenced on the hospital at Hanford.—The staff of the Berkeley Dispensary has been made up as follows: Drs. Frank W. Edmonds, Robert Hector, Frank Simpson, Fred H. Van Tassell, Thomas C. McCleave, Romilda Paroni, Wilbur A. Sawyer, Florence Sylvester, John U. Force, May H. Sampson, Edith S. Brownsill and E. B. Hoag.

Personal.—Dr. Anderson, San Francisco, has been made assistant surgeon by the Northwestern Pacific Railroad Company, stationed at the Bryan Bluff Receiving Hospital.—Dr. Frank R. Dray has been appointed chief medical officer of the German Hospital Association at San Francisco.—Dr. Howard W. Levensgood, Ocean Park, has been appointed professor of state medicine and hygiene in the College of Physi-

cians and Surgeons, University of Southern California.—Dr. E. W. Parsons has resigned from the Emergency Hospital, San Francisco, and will be succeeded by Dr. Fred H. Zumwalt.—Dr. James M. Gassaway, surgeon in charge of the United States Marine Hospital, San Francisco, was injured in a street car accident, sustaining fractures of the pelvis, one rib and one leg in two places.

FLORIDA

New Hospital.—The new Mission Hospital was recently opened at Pensacola. A staff of twenty-two of the leading physicians of Pensacola was appointed, with Dr. Juriah H. Pierpont as chairman of the medical board.

Enforcing Health Ordinances.—City Health Officer Charles E. Terry, Jacksonville, has invoked the assistance of the police in enforcing the city health ordinance relative to the protection of meat, fish, fruit and vegetables from flies and other insects. The dealers are required to protect these articles by screens.

Branch Laboratory.—The state board of health has opened a branch laboratory in Pensacola, and has placed in charge Dr. F. A. Brink, formerly of North Dakota. The establishment of the laboratory will materially aid the profession in that section of the state in their crusade against communicable diseases, especially hookworm and tuberculosis.

Appointment of Visiting Staff.—At the recent meeting of the Board of Commissioners of State Institutions at Tallahassee, on the recommendation of B. F. Whitner, superintendent of the Florida Hospital for the Insane, the following physicians were named on the visiting staff: Drs. Gerry R. Holden, Jacksonville; James H. Randolph, Chattahoochee; Clarence E. Hutchinson, Pensacola; Henry E. Palmer, Tallahassee, and Urban S. Bird, Tampa.

Crusade Against Malaria.—At the annual meeting of the State Medical Society, held in Jacksonville last April, a special committee was appointed to inaugurate a campaign throughout the state against malaria. This committee has issued an address to the people of the state stating that the first step in the campaign is to secure the cooperation of the public and that heretofore those interested in public health had not been supported. The committee in its address then says:

To accomplish this end, there will appear in the daily press of the state, a series of bulletins, issued at certain intervals, for the purpose of educating the public on the damage done to the state as a result of malaria, the extent to which the disease prevails, how the infection is carried from person to person, correcting the many false impressions concerning its transmission, showing how little decrease there has been in the disease during the past decade in this and other southern states, what has been accomplished in other parts of the world during the same period, as a result of a properly organized campaign, and finally, a summary of how it is possible to entirely eradicate the infection from our South, if the people generally will aid in every way they can.

The committee is composed of Drs. Graham E. Henson, E. VanHood and Edmund W. Warren. They have issued Bulletin 1, which has been published in the newspapers throughout the state, in which they state the situation in regard to malaria. They say that from two hundred to four hundred lives are offered as sacrifices to malaria in the state every year, equal to an annual cash loss of \$800,000, estimating the value of each life at \$2,000. In addition to that, the loss in wages, cost of attendance, drugs, etc., amounts to \$400,000 more.

ILLINOIS

Evanston's Health Record.—Evanston claims to be the healthiest city in the state, the death rate for the past year being reported as only nine per 1,000 of population.

New Hospital.—Plans for the new \$50,000 Methodist Hospital at Peoria have been completed and bids asked for. The plans provide for a four-story building in the renaissance style, 70 by 80 feet. The kitchen will be placed on the top floor.

School Boards and Medical Inspection.—At Rockford, Corporation Counsel Rew has rendered an opinion that inspection of school children must be done under the supervision of the city health department instead of the school board, and that the board of education cannot legally provide for medical inspection. It is said that State Attorney-General Stead and State Superintendent Blair hold the same opinion.

Chicago

New Emergency Wards.—Since the abandonment of the old Harrison Street Emergency Hospital, two rooms have been fitted up in the Harrison Street Police Station for emergency hospital purposes, in charge of Drs. Charles D. and Clarence

H. Wall. As many as ten to fifteen minor surgical cases have been cared for each day since.

Personal.—Dr. and Mrs. Isaac A. Abt sail for Europe August 20 to be gone until November.—Dr. George Sultan has become a candidate for county commissioner of Cook County. His candidacy is endorsed by many leading physicians.—Dr. Milton J. Rosenau, professor of pathology in Harvard University Medical School, is to deliver the Harris Lectures for 1912 at Northwestern University. These lectures were established by the gift of Mr. Norman W. Harris.—Dr. B. Georgas is convalescing from appendicitis at Lincoln Hospital.—Dr. B. C. Corbus has gone to Berlin to investigate the new Ehrlich treatment.

Funds for Tuberculosis Institute.—The Chicago Tuberculosis Institute is endeavoring to raise a midsummer fund of \$2,500 with which to support the work until fall. The eight free tuberculosis dispensaries are handling from twenty to sixty patients a day. Every month about 240 new cases are examined, and the eleven nurses are making nearly 1,700 visits a month in homes of the patients. In addition three of the nurses devote a portion of their time to three open air schools for anemic children maintained at the Libby School, Penn School and Lake View High School. There are 35 children in each school.

Health Conditions.—For the first time during the summer the weekly death rate in the city was below that of last year, for the week ending August 13 the rate being 13.6 per 1,000 as against 13.9. Diphtheria was unusually prevalent, there being 79 new cases as against 49 for the corresponding week of last year, with 8 deaths as against 4 last year. The health commissioner, in addressing residents of the Twenty-ninth Ward, where sanitary conditions have been particularly bad, said "there is no such thing as a public standard until there is a proper standard of private living." Clean up day in the city was arranged for Tuesday, August 16, and was well observed.

IOWA

New Wing to University Hospital.—The state has purchased the Asa Moler property east of the present hospital site and will erect a new wing to the University Hospital.

Personal.—Dr. Campbell Howard, Montreal, Que., has accepted the chair of internal medicine at Iowa State University, Des Moines, and Dr. Erwin Schenck, Des Moines, has been made professor of skin diseases.

Visiting Nurses' Association.—At Burlington the work of the visiting nurses' association has been organized and Miss Augusta M. Jones, Moline, Ill., will have charge. Among those directing the work will be Drs. John C. Fleming and George B. Little.

Poliomyelitis.—About fifty cases of poliomyelitis have been reported from Mason City. Isolated cases have also been reported from other places. The State Board of Health held a conference August 17 to consider the best way of dealing with the disease.

Infant Mortality.—According to a statement of Dr. G. H. Sumner, secretary of the State Board of Health, one-third of the babies in Iowa under one year of age have died since the hot weather set in. The deaths are due principally to cholera infantum, infantile paralysis, poor milk and improper care. Cholera infantum and infantile paralysis have become so serious that the board has called a special convention of physicians throughout the state to discuss means of handling the situation.

KANSAS

Personal.—Dr. Seth A. Hammel, Topeka, has been appointed first lieutenant in the medical department of the Kansas National Guard, in the place of Dr. J. W. Graybill, Wichita.

Kansas City Health Board Changed.—Kansas City has passed an ordinance abolishing the old board of health and establishing a health department under a health commissioner, who is to be a graduate physician skilled in laboratory work. There will be in addition to the commissioner, three field men, a laboratory assistant and a clerk. It is hoped by this method to lessen the expense and at the same time attain a more efficient administration of health matters.

State Board on Poliomyelitis.—The July number of the *Bulletin of the Kansas State Board of Health*, aside from the table of vital statistics, is almost wholly taken up with an article on epidemic anterior poliomyelitis, a disease which prevails to some extent in Kansas. In addition to the symptomatology, course and pathology of the disease, the history of the present epidemic is given. The bulletin is illustrated

with micro-photographs of sections of the spinal cord taken from fatal cases, and the whole bulletin makes a valuable contribution to the subject of infantile paralysis. The health board has issued to the people of Kansas a set of rules looking to the prophylaxis of poliomyelitis among the children.

MARYLAND

State Society Meeting.—The semi-annual meeting of the Medical and Chirurgical Faculty will be held at Annapolis, September 12-14. The Anne Arundel County Medical Society has appointed a committee to prepare for their entertainment. A joint meeting with the Maryland Psychiatric Society will be held. The membership of the state society now is 1,069. The publication committee estimates that the saving during the past year by the publication of the *Bulletin* has been about \$700.

Baltimore

Report of Insane Hospital.—In the sixty-seventh annual report of Mount Hope Retreat, Dr. Charles G. Hill, physician-in-chief, gives the total number of patients treated last year as 985; 257 were discharged and 63 died. Dr. Hill discusses interestingly the causes and circumstances surrounding the insane.

Death from Rabies.—A child five years old died from rabies at Mercy Hospital, August 10. This is the fourth death of those treated at the Pasteur Institute in the eighteen years of its existence. The child was bitten with eight others May 23 last. There were two bites in her cheek. The other cases were all treated and are doing well.

Druggists and Soothing Syrups.—It is said that at the meeting of the Baltimore Retail Druggists' Association, to be held in September, the druggists will decide not to handle soothing syrups now fed to children by mothers. There is no law prohibiting their sale, unless they contain laudanum, and all do not contain it. Following the action of the government, many cities have already taken decided action in the matter.

Personal.—Dr. Alfred Whitehead is in the Berkshire Hills, Mass.—Dr. William S. Halstead has returned from Europe.—Dr. Arthur P. Herring, secretary of the Lunacy Commission, is reported to have narrowly escaped drowning in the natatorium of the Hotel Chamberlin at Old Point Comfort, Va., August 7.—Dr. Andrew H. Whitridge was operated on for appendicitis early last week at Interlaken, Switzerland.—Dr. Howard W. Jones has been sued for \$10,000 damages for the death of a boy, alleged to be due to injury inflicted by the doctor's automobile.

MASSACHUSETTS

Typhoid in Worcester.—Twelve cases of typhoid fever have been reported in Worcester. It is said that all of the cases have been traced to the use of milk distributed by one dealer.

Open-Air School for Children.—The gratifying experience of Boston's open-air school conducted last winter for tuberculous and anemic children has led the authorities to extend this plan for the coming winter.

Infantile Paralysis.—At Springfield, in view of the increasing death-rate from infantile paralysis, the local board of health has increased the quarantine period from two to four weeks. The disease has attacked a number of adults, and one death of an adult has occurred.

Preventing Blindness.—Dr. Mark W. Richardson, secretary of the state board of health, has been sending to every physician of the state a vial of 1 per cent. nitrate of silver solution to be used for the prevention of ophthalmia neonatorum, and has issued a circular giving suggestions as to its use.

Governor Approves Work of Physicians.—At the annual dinner of the Massachusetts Medical Society, in Boston, Governor Draper addressed the physicians and said: "I believe there is no profession which is bringing forward so many innovations for the benefit of mankind as this old and honorable profession of yours. Medicine has made bigger strides and developed more than any other profession."

Unsanitary Condition of River.—Protest has been made by citizens against the unsanitary condition of the upper section of the Charles River, including the Lower Falls and Upper Falls districts of the Metropolitan Park district. Concerted action will be taken by the citizens of the towns along the river to ask the next legislature to clean out the river and prevent further pollution by mills and factories.

Medical Inspection of Schools.—The board of health of Boston has submitted to the mayor a plan of reorganization

of the corps of medical inspectors in the public schools. By this plan the board of medical inspectors will be reduced from eighty to forty and the salaries increased from \$200 to \$1,000. In addition ten physicians will devote their entire time to infectious diseases, and the salary to be paid them will be \$500 per year each.

Personal.—Dr. George D. Henderson has been appointed medical inspector at Holyoke. He will examine school pupils wishing to go to work.—Dr. Richard C. Cabot, Boston, was presented with a loving cup by the summer class at the Massachusetts General Hospital. Dr. and Mrs. Cabot entertained the class at their summer home at Cohasset.—Dr. William J. Brickley, Charlestown, has been given charge of the City Hospital relief station in Haymarket Square, Boston, to succeed Dr. Edwin L. Drowne.

New Child Labor Law.—The law passed by the last legislature providing that children between the ages of 14 and 16 must be inspected by a physician before going to work in factories, workshops or mercantile establishments went into effect August 1. The committee on medical inspection of the State Child Labor Committee has issued a statement calling the attention of the public to the new law. It is found that many minors in Massachusetts factories are in ill health and unfit to work.

MICHIGAN

Personal.—Dr. John H. Pettis, West Branch, has been appointed to a position in the State University at Ann Arbor.

New Emergency Hospital.—A new emergency hospital for contagious diseases will be erected at Flint, on the site of the present hospital, at a cost of \$2,500.

Gift of Sanitarium.—C. W. Post, Battle Creek, has given to the Traders' and Workers' Association at Battle Creek the Phelps Sanitarium building erected several years ago at a cost of \$400,000. It will be used for hospital purposes by the association.

Smallpox in Michigan.—Smallpox is prevalent in a number of places throughout the state at the present time. There has been one case reported from Mackinac Island and one or two suspected cases are being watched for developments. The disease is being taken care of by the local health authorities of the state, cooperating with the state board of health.

Work Against Tuberculosis.—The City of Kalamazoo has arranged to establish open-air schools for children with tuberculosis and for anemic pupils, who need plenty of fresh air.—Muskegon has begun a poster campaign against tuberculosis by placing on billboards in various parts of the city posters nine feet high pointing out the essentials for the prevention of tuberculosis. According to Secretary Murray of the State Board of Corrections and Charities a great deal of tuberculosis exists in the county infirmaries, jails and other public institutions, and the situation calls loudly for relief.

NEW YORK

De Peyster Home May Close.—This institution, located at Verbank, near Poughkeepsie, which has been in existence for nearly a century, may be forced to close for want of funds unless money is forthcoming at once. There are about one hundred invalid children in the home at present.

Health Field Day at Rochester.—Rochester's health field day, participated in by the military companies, civic and athletic societies and the school children of the city, and generously supported by the public, was a great success and resulted in a fund of \$5,000 for the benefit of the children's free dispensary.

Personal.—Dr. A. T. Bull, the oldest practitioner in Buffalo, hale and hearty until a few weeks ago, at 85 has been made an honorary member of the Erie County Medical Society and an honorary life member of the Buffalo Academy of Medicine. Two weeks ago, however, in attempting to board a street car he was thrown to the street and seriously injured. He is still in a critical condition and may not recover.

New York City

Coal Lands for Hospital.—By the will of Normal I. Rees St. Luke's Hospital will receive about 6,000 acres of coal and iron lands in Virginia and West Virginia.

Women Want Internships.—Dr. Maud Glasgow has initiated a movement to get women admitted as interns into the larger hospitals of New York. There are said to be only two smaller hospitals in Greater New York where women can be admitted as interns.

German Hospital Needs Money.—The addition to the German Hospital of Brooklyn which was so urgently needed has been begun without provision having been made to defray the entire cost, so the board of trustees has appealed to the general public for funds with which to carry on the work.

Another Move by Osteopaths.—The osteopaths are still struggling for recognition by the health board. A motion has just been argued before the Supreme Court of Brooklyn for an injunction to restrain the board of health from enforcing Section 163A of the Sanitary Code, which provides that no transit permit shall be granted for the burial of a person who has been treated by an osteopath until the body has been examined by a regular physician. Justice Putnam reserved his decision.

Milk Dealers Willing to Cooperate.—The board of health has placed its ban on all pasteurized milk in bulk as food for infants unless it is boiled and Dr. Lederle has suggested that dealers and dairymen cooperate with the department in producing milk of definite grades suitable for young children. Dealers have expressed their willingness to do what they can and are considering plans which they will submit to the board of health. Of the 1,600,000 quarts of milk received daily in this city only about 2 per cent. is certified or guaranteed. The aim of the department is to get a sufficiently good quality of milk for babies at a reasonable price, such as is sold in many European cities.

Harvey Lecture Program.—The Harvey Society elected the following officers for the year 1910-1911: President, Dr. Simon Flexner; vice-president, Dr. John Howland; treasurer, Dr. Edward K. Dunham; secretary, Dr. Haven Emerson; council, Drs. Graham Lusk, S. J. Meltzer and James Ewing. The following program for the next series of lectures has been arranged:

October 15.—Prof. Dr. H. Chiari of Strassburg, Germany, on "Die Bedeutung der pathologischen Autopsie und sonstiger pathologisch-anatomischen Untersuchungen."

November 12.—Prof. W. E. Castle of Harvard University, on "Unit Characters in Heredity."

December 10.—Prof. Harvey Cushing of Johns Hopkins University, on "Certain Clinical Aspects of Dyspituitarism."

January 14.—Prof. Arthur R. Cushny of the University of London.

February 4.—Dr. Thomas B. Osborne of the Connecticut Agricultural Experiment Station, New Haven, on "The Chemistry of the Proteins."

February 25.—Prof. Jacques Loeb of the Rockefeller Institute for Medical Research.

March 18.—Prof. H. Gideon Wells of the University of Chicago.

These lectures are open to the public and are given on Saturday evenings at the New York Academy of Medicine.

NORTH CAROLINA

Free Dispensary.—A new free dispensary at Asheville was opened August 15, in charge of Drs. Frazer, Ringer and Herbert. The dispensary was founded by the Associated Charities.

Pure Water.—Sixty-three municipalities of this state have public water supplies which have collectively received during 1,486 examinations in the state laboratory of hygiene with the net result of finding only 5 per cent. of contaminated water. Practically all of those found deficient have, under direction of the State Board of Health, corrected the defective water service.

State Health Secretary on Vaccination.—The annual report of the secretary of the State Board of Health in the June *Bulletin* of the board discusses the question of quarantine for smallpox. The secretary approves of the action of Minnesota and South Carolina in abolishing quarantine, and says that if it was generally known that there would be no quarantine nearly everybody would be vaccinated. He then says that the minority would consist of two classes of people:

The first class are those whose sense of responsibility for community health is such that they are more influenced by the anticipated slight personal discomfort of a sore arm than they are influenced by considerations of the public weal. The second class are our esteemed friends who do not believe in the protective power of vaccination. To these science is dumb and experience is a liar. And yet to protect these two classes we quarantine. To protect them when they alone last year spread the disease all over our fair state, put the state to an expense of \$40,000 to \$50,000! Do these civic irresponsibles deserve an altogether unnecessary expenditure of \$50,000 by those who have discharged their civic obligation in the matter of smallpox? My answer is: No.

Free Diphtheria Antitoxin.—For more than a year past the State Board of Health has provided diphtheria antitoxin at actual cost to all indigents who reside in counties applying for the same—the cost eventually being borne by the counties themselves; forty-nine counties and thirteen cities during the past year availed themselves of the privileges of the reduced

cost in diphtheria antitoxin. There is a move now on foot to secure such legislation from the coming legislature as shall enable the state to establish a plant for the production of its own antitoxin.

Judgment Against Physician.—In the Superior Court at Wilmington last week judgment was obtained against Dr. Lionel H. Love, formerly of that city, but for the three years past a resident of Monterey, Cal., in the sum of \$5,000 for damages in an action brought by a former patient whose dislocated and fractured arm was treated by Dr. Love some ten years ago. Dr. Love admitted the arm was out of joint but insisted the plaintiff would not consent to an anesthetic, without which, owing to local conditions at the time, it was impossible to make a correct diagnosis. Appeal was taken to the Supreme Court.

Personal.—Dr. Robert L. Gibbon, Charlotte, is convalescing from a severe attack of typhoid fever.—Dr. O. L. Holler, Taylorville, while driving to a patient during a severe storm August 1, was struck by a falling tree, sustaining a fracture of the skull. Unconsciousness supervened immediately, trephining was done by Dr. H. F. Long of Statesville, and later Dr. Holler regained consciousness with a fair prospect of recovery.—Dr. J. S. Lafferty, Charlotte, is doing post-graduate work in Berlin.—Dr. J. Herbert Mease of Canton has been nominated by the democrats for representative in the state legislature for the ensuing term of two years.

Hospital Investigation.—The State Board of Internal Improvements spent several days in session at Greensboro last week hearing evidence relating to the charges preferred against Dr. J. R. Brooks, superintendent of the State Sanatorium for Tuberculosis at Montrose, and the trustees of the institution, by Dr. John Roy Williams of Greensboro. The trustees include three well known physicians besides six other prominent citizens. The State Sanatorium was opened early in 1908 when the accommodations were probably insufficient and the exhaustion of the legislative appropriation prevented the completing of the full equipment of the sanatorium. The findings were wholly at variance with the charges made, and the trustees and Dr. Brooks were vindicated fully in the report to the governor.

Examination of Troops for Hookworm.—Dr. John T. Ferrall, working under the joint auspices of the State Board of Health and the Rockefeller Commission as special assistant, has just completed the examination of the members of the state guard at the annual encampment. As a result it appears that the Second Guard Regiment (from eastern or coastal Carolina), showed 57 per cent. of infection, and the First Regiment (from the western or mountain section), 37 per cent. The examination of the Third Regiment (central Carolina), was not so complete as were those of the other two regiments, but apparently it showed about 40 per cent. of its men infected with hookworm. Much interest is being manifested by physicians of the state in diagnosing the disease, a report from the state laboratory of hygiene at Raleigh showing an average of twenty-five specimens of feces arriving daily for microscopic study and report.

PENNSYLVANIA

Personal.—Dr. B. H. Detwiler of Williamsport, is seriously ill with paralysis. His whole right side is affected.

Infantile Paralysis.—Two deaths from and three new cases of infantile paralysis were reported to the health authorities at South Bethlehem, August 8.

State Sanatorium Bids.—Bids for the construction of the buildings of the State Tuberculosis Sanatorium to be erected at Cresson show that the work will cost about \$250,000.

Typhoid at Wilkes-Barre.—On August 8 seven new cases of typhoid fever were reported in Wilkes-Barre, making a total of 50. The state health authorities have been asked to make a thorough investigation.

Rittersville Investigation.—The report of Mr. Lindley Johnson, the consulting architect retained last May by the State Board of Public Grounds and Buildings to investigate the work of the State Homeopathic Hospital for the Insane at Rittersville, was made public by Governor Stuart on August 12. The work was begun nine years ago and not one of the buildings has been completed. Appropriations by various legislatures for this work total \$1,703,750, and contracts already let for the work amount to \$1,482,445.83. To complete the buildings will require \$349,000. The balance in the

state treasury is \$272,781.40, so that an additional appropriation of \$76,219.60 will be required to finish the work, according to Mr. Johnson's ideas. He says that the work is well executed and that the hospital can be put in condition to receive some patients within four months, though at least a year will be required before the institution can be completed. He also reports that many of the buildings have suffered from exposure to the weather in an incompleting state. Many walls have been disfigured and much plastering ruined, but the buildings have not been structurally weakened.

Philadelphia

Personal.—Dr. Louis J. Burns sailed for Europe August 11 and Dr. George E. de Schweinitz August 13.—Dr. Edward P. Davis sailed August 10 to attend the International Gynecologic Congress in St. Petersburg, to which he is a delegate from the American Gynecological Society and the Jefferson Medical College.

Unlicensed Druggists Arraigned.—In the crusade against unlicensed drug-stores and the compounding of prescriptions by "quack" pharmacists, the State Pharmaceutical Board had four druggists of "Little Italy" arraigned before Magistrate Beaton August 12. In each case the druggists who violated the law were held under \$600 bail for court.

Typhoid Increase Due to Carelessness.—Investigation of typhoid fever cases reported in the two weeks ending August 13, showed that 72 per cent. were men between ages of 17 and 32, and 28 per cent. were women. Chief Vogelson of the Bureau of Health said that the history of many of the cases showed that young men on boating trips had drunk raw river water.

Hospital for Midvale Steel Works.—Plans have been prepared for a two-story fire-proof hospital building, 54 by 80 feet, containing emergency wards, dispensary and quarters for a doctor. At present, a physician makes daily visits to the Midvale Steel Works, but because of frequent accidents in the shops, it has been found necessary to have a doctor in constant attendance.

Maker of Soothing Syrup Arrested.—Following the resolutions made by the Retail Druggists' Association to stamp out the indiscriminate sale of doped soothing syrups, a warrant was sworn out before Magistrate Beaton, by Dr. Christopher Koch, vice-president of the State Pharmaceutical Board, for the arrest of Mrs. M. M. Harvey, manufacturer of "Mother's Comfort," a medicine which has been found to contain one-third of a grain of morphin to the ounce.

Free Dental Treatment.—A dental clinic is to be established in the city hall, under the direction of the Department of Health and Charities. An appropriation of \$3,000 for this purpose was made by councils several months ago. The committee to have charge of the dental dispensary is composed of P. B. McCullough, chairman, and Drs. W. A. Jaquette, Edward C. Kirk, J. J. Burke and Charles B. Schupack. One hundred dentists have volunteered their services, and rooms will be fitted up with all the modern appliances. It has been estimated that 80 per cent. of the public and parochial school children are in need of dental treatment.

War Against Doped Soft Drinks.—Up to August 13. 60 warrants had been sworn out by Special Agent H. P. Cassidy, of the State Dairy and Food Department, for the arrest of bottlers, who are charged with putting harmful substances into bottled soft drinks. Fourteen were ordered to appear for a hearing before Magistrate Beaton August 16. Some have already been convicted of adulterating their products and have paid heavy fines. Samples were taken of the cheap varieties of soda by Agent Cassidy and were analyzed by Prof. Charles H. Lawall, chemist for the State Dairy and Food Department, and were found to contain saccharin and soap bark. Children are the principal purchasers of the cheap drinks and it is thought that much of the illness among children in the tenement district is due to this fact.

Space on Recreation Piers to be Increased.—As a result of an inspection tour made on August 9 by Dr. Neff, Chief Eisenbower, of the Bureau of City Property, and Select Councilman Ryan, the space on the Chestnut and Race Street piers will be greatly increased. The report of the work on the Chestnut Street pier is as follows: Daily attendance, sick infants, 20; well infants, 24; older children, 36. Total attendance of children, 80. The attendance at the Race Street pier was equally good. Large quantities of medicines and modified milk have been distributed since the centers were opened ten days ago. Figures relative to the work being done in connection with the campaign for the reduction of

infant mortality, show that during the week ending August 13, 19 nurses were engaged. They made a total of 1,374 visits and assisted in the care of 224 infants.

SOUTH CAROLINA

Personal.—Dr. Charles Speissegger, Jr., Charlestown, has received his commission as army surgeon with the rank of first lieutenant.

Pasteur Institute.—The board of health of Charlestown has opened a Pasteur institute for the treatment of rabies. It will be in charge of Drs. John M. Green and George M. Mood.

New City Hospital.—A charter has been secured and building will be begun immediately on a new city hospital at Gaffney. The capital stock is \$10,000. Dr. R. T. Ferguson is secretary-treasurer of the organization.

Medical Society Meetings.—At a meeting of the Palmetto Medical Association, composed of colored physicians of the state, the following officers were elected: President, Dr. H. C. Hardy, Spartanburg; vice-president, Dr. L. S. Edwards; secretary, Dr. Issac N. Macon, Rock Hill, and treasurer, Dr. J. S. Allen, Chester. Lancaster County Medical Association was organized at Lancaster recently and the following officers elected: President, Dr. Thomas J. Strait, and Dr. William F. Laney, secretary, both of Lancaster.

VERMONT

Personal.—Dr. Richard G. Eaton, Wakefield, Mass., has been appointed by the trustees of the Brattleboro Retreat second assistant physician, to succeed Dr. Park R. Hoyt, recently resigned.

Health Officers Meet.—The twelfth annual school of instruction for health officers was in session at Montpelier for four days, beginning August 1. Dr. George M. Kober, Georgetown University, Washington, D. C.; Dr. Henry A. Wood, Waltham, Mass., and Dr. Livingston Ferrand, New York, secretary of the National Association for the Study and Prevention of Tuberculosis, were the guests of the meeting. State's Attorney H. B. Shaw, Burlington, read a paper on "Legal Points in Health Work" and then answered legal questions raised by the health officers. He gives it as his opinion that the state board of health has no power to give to the health officer of a city or town the right to act in an adjoining town or city where a health officer has been appointed. He also ruled that complaints of nuisances must be made to the local health officer and not to one in an adjoining town or city. The proposition for a national department of health was endorsed.

VIRGINIA

Hookworm Examinations.—Dr. Roscoe C. Carnel, representative of the Virginia Board of Health, has been spending some time in Suffolk, cooperating with the physicians in that place in the study of hookworm cases.

School Inspection and Sanitation.—Medical inspection of the school children of the Norfolk public schools will be inaugurated for the coming term. The common drinking cup has been abolished and sanitary drinking fountains will be installed in all the schools.

New College Board.—In the reorganization of the University College of Medicine, Richmond, all the medical representatives of the board of trustees resigned and the new board is made up of laymen, except Dr. John W. Dunn, secretary. Dr. Stuart McGuire was elected president of the faculty.

Society Organized.—More than fifty physicians, representing the counties of Warren, Frederick, Clarke, Rockingham and Shenandoah, met at the Memorial Hospital in Winchester, August 10, and organized the Shenandoah Valley Medical Society. Dr. Durus D. Carter, Woodstock, was elected president and Dr. Cox, Winchester, secretary-treasurer. The organization will meet quarterly. Dr. Stuart McGuire, Richmond, was chosen counselor in the State Medical Society.

Work Against Tuberculosis.—The tuberculosis hospital at Petersburg, the first to be established in the state, is to enlarge and extend the sphere of its usefulness. The Hill Crest Settlement has purchased the farm on the southern border of the city, containing twenty acres and a dwelling house of ten rooms. The capacity of the institution will be enlarged. Realizing the necessity of work among negroes in order to make effective the fight against tuberculosis, it has been determined to organize leagues among teachers and students in the colored schools in the state. This work will be done under the direction of the State Antituberculosis Asso-

ciation, which recently held a meeting in the office of the state health department, Richmond. Dr. Charles P. Wertenbaker, United States Public Health and Marine-Hospital Service, was detailed by the surgeon-general to attend this meeting. Dr. William F. Drewry, Petersburg, was elected chairman of the committee. The colored people of the state are awakening to the necessity of combating the disease and are taking interest in the work of the colored antituberculosis league of Virginia. The first meeting of the league was held at Hampton, August 11, and a campaign along lines suggested by the state health department will be carried on among colored people in every part of the state. The seaside camp at Cape Henry, under the direction of the Norfolk Antituberculosis League, which takes care of children whose parents have died from tuberculosis, reports a very successful season. The camp opened June 12 and will remain open until September 1. The new tuberculosis camp on the city farm, Richmond, is completed and was opened August 15. There will be no resident physician, but Dr. Giles B. Cook will act as medical examiner.

GENERAL NEWS

Fighting Tuberculosis in the Philippines.—Hon. Jacob M. Dickinson, secretary of war, who has been visiting the Philippine Islands, assisted at Manila in the organization of a national society to fight tuberculosis. The disease has been making great inroads among the Filipinos.

International Red Cross Conference.—The ninth international conference of the Red Cross will be held in Washington, D. C., in May, 1912. Red Cross endowment fund committees of prominent men have recently been appointed in Chicago, St. Louis, Cincinnati and Washington by President Taft, and effort will be made to raise a fund of \$2,000,000 for the American Red Cross.

International Epilepsy Congress.—An international association for a systematic study of epilepsy and care and treatment of epileptics was organized at Budapest last year, and the first general meeting is to be held at Berlin Oct. 4 to 7, 1910. Prof. A. Tamburini of Rome and Prof. J. Donath of Budapest are, respectively, the president and the secretary of the association. Professor Veith will discuss the criminality of epileptics and a number of statistical works will be presented. The transactions will appear in the journal *Epilepsia*.

Health and Mortality in the Canal Zone.—The report of the Department of Sanitation of the Canal Zone for the month of May compares the mortality among the employees for the past four years. It shows that the number of deaths among the 39,000 employees in 1907 was 98, while among the 52,800 employees in 1910 it was only 34. The death rate per thousand during May among the white employees during American control was, 1907, 18.34; 1908, 14.59; 1909, 14.11; 1910, 6.98, and among the black employees during the same month, 1907, 34.48; 1908, 8.72; 1909, 7.87; 1910, 6.98. The average number of employees constantly sick per 1,000 in hospitals, sick camps and quarters, is, white, 46.48; colored, 15.80.

Mississippi Valley Meeting.—The annual meeting of the Mississippi Valley Medical Association will be held this year at Detroit, September 13, 14 and 15. The headquarters will be at the Hotel Pontchartrain. Dr. Frank P. Norbury, Hospital, Ill., is president; Dr. Henry Enos Tuley, Louisville, Ky., secretary, and Dr. Henry O. Walker, Detroit, chairman of the entertainment committee. A preliminary program has been issued, which may be obtained from the secretary on request.

Cholera May Prevent Medical Meeting.—The meeting of the International Gynecologic Congress, which was to be held in St. Petersburg in September, may not convene in that city on account of the epidemic of cholera prevailing there. Dr. Charles A. L. Reed, Cincinnati, president of the American committee and government delegate to the meeting, has cabled the Russian committee that if the meeting cannot be held there the American profession will welcome the organization to this country. The meeting of 1908, which was to be held in St. Petersburg, was deferred for the same reason.

Tuberculosis in Prisons.—Through the investigation of the National Association for the Study and Prevention of Tuberculosis, as set forth in a bulletin recently issued, there are 12,000 tuberculous prisoners in state, federal and local prisons and jails in the United States, or an average of 15 per cent. of the prison population. Only twenty-one prisons in fifteen states and territories have provided special places for the treatment of tuberculous prisoners. These institutions can accommodate only 800 patients. In three-fourths of the

larger prisons and jails no provision is made for isolating these patients. New York and Massachusetts are the only states where any systematic attempt has been made to transfer tuberculous prisoners to one central station. Tuberculosis is also exceedingly prevalent in the prisons of the Philippine Islands, and the largest tuberculosis hospital is in Manila where accommodation for 200 tuberculous prisoners is provided. The Clinton Prison Hospital in New York provides for 150. The 100,000 prisoners annually discharged from jails and prisoners, 15 per cent. of whom are tuberculous, present a serious problem in the distribution of tuberculosis.

FOREIGN

New Large Public Hospital at St. Petersburg.—The cornerstone of the Peter the Great Hospital was laid at St. Petersburg last month. It is to be the largest hospital in Russia, with thirty-seven separate buildings, and is expected to cost over \$10,000,000.

Personal.—The Astley Cooper prize has been awarded by the Guy's Hospital School to Professor E. Starling, F.R.S. At the meeting of the Berlin Academy of Sciences on June 30, commemorative addresses were made on Friedrich Kohlrausch, by Professor Rubens; on Hans Landolt, by Professor van't Hoff, and on Robert Koch, by Professor Rubner.

Russian Cholera Epidemic.—The cholera in Russia continues to spread, particularly in St. Petersburg and in the southern mining districts, and is approaching the proportions of the epidemic of 1908. Figures of the central sanitary bureau show that in the week ending July 30 there were 15,244 cases of cholera and 6,944 deaths. The government has decided to send to the mining regions a special commission to study the situation, empowered to organize sanitary preventive work. Industrial conditions are seriously handicapped in the afflicted regions.

Deaths in the Profession Abroad.—Besides those mentioned elsewhere the profession has lost the following eminent medical men: Larra y Cerezo, M.D., of Madrid, a high military medical officer and president of the Medical Press Association of Spain.—J. Grünfeld, M.D., of Vienna, prominent in syphilology and a pioneer in the field of endoscopy. He was 70 years old.—H. Berestnew, M.D., of Moscow, one of the leading bacteriologists of Russia.—George Herbert Rowe, M.R.C.S., Leeds, trustee and senior surgeon of the Leeds Dispensary, aged 53.—Claude Muirhead, M.D., F.R.C.P., consulting physician to the Royal Infirmary; died at Edinburgh June 22, aged 75.—Dr. G. B. Halford, late professor of physiology in the Melbourne University at Melbourne, Australia, aged 86.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, June 21, 1910.

Medical Surveys of Native Towns

The medical survey party has returned from one of the northern provinces where it has been making investigations. It has been planned to send out at least one of these survey parties each year. They are arranged by the Bureau of Health, the Philippine Medical School and the Bureau of Science and are usually sent out during the vacation period of the medical school. Under a director the survey party goes to a typical native town of a district or province and with the aid of the presidency, the local head of the government, establishes a dispensary and makes a medical investigation of the town. The object is to inquire into the sanitary conditions of the inhabitants, the water supply and sewage disposal, to determine what contagious diseases, if any, are present and to what extent, to find what diseases are most prevalent—special attention being given to smallpox, plague, cholera, typhoid and dysentery—and to look into the midwife practice and infant mortality. Some difficulty is often encountered in overcoming the natural reserve and suspicion of the inhabitants. On this account locating the various people who are sick and inquiring into their mode of living often becomes quite a problem. The inhabitants will not always come to the free dispensary of their own accord until they have looked the intruders over and satisfied themselves of their purpose. In addition many cases of serious illness are likely to go unnoticed even after the best of relations have been established between the doctors and the natives. To overcome these difficulties, a happy plan was put into practice last year. This consisted in the taking of a complete

civil census of the town as the first part of the program. After the dispensary, laboratory and living quarters were established a house-to-house canvass was made. Thus the survey party soon became acquainted with the people and nearly all the cases of serious illness as well as insanitary homes, etc., were early located.

At Taytay last year a complete medical and geographic survey, as well as an anthropologic study of the people were made. The whole is published in a recent number of the *Philippine Journal of Science*. These surveys serve at least three purposes: They add to our knowledge of the variety, severity and extent of tropical diseases in the Orient and particularly in the Philippines. They materially aid the Bureau of Health in determining the sanitary condition of the average town of the various provinces of the Philippines, the geographic distribution of the rare diseases and of the more common epidemic diseases. The members of the parties become intimately acquainted with the Filipinos and are thus better able to carry into effect from time to time their program of sanitation; finally the Philippine Medical School is kept in close touch with the practical side of medical questions as they appear in the islands and it is enabled to vary the curriculum accordingly.

Polished Rice and Beriberi

In the Philippines in all specifications for commissary stores where rice is required for either the Army or Navy unpolished rice is specified. Polished rice is no longer used as a diet in either the Army, the Navy or in the public institutions of the islands. The supposed relation of polished rice, as a diet, to the development of beriberi is the direct cause of this ban. In so far as statistics are available and reliable, it would seem that since the introduction of improved rice-milling machinery into the Philippines the amount of beriberi among the natives has increased. Of course due allowance must be made in these considerations for a great number of cases reported as beriberi which are, to say the least, of a doubtful diagnosis. Since beriberi has been so much in the limelight of recent years in the Orient, it would hardly be an exaggeration to say that there has been a tendency to include various nervous disturbances under the heading of beriberi which in reality should have been classed as something else. In spite of this, a number of competent medical men both in the Philippines and in other parts of the Orient have observed an increase in the number of cases of this disease since polished rice has supplanted the hand-milled rice as the staple article of diet. In many sections the natives have early shown a preference for polished rice. It is rather noteworthy also that beriberi is decidedly more frequent among that class of natives whose staple and principal article of food is polished rice, and that in those remote regions where the Filipino still uses the unpolished rice, although rice is the principal article of diet, beriberi is relatively rare. These observations go hand in hand with the observations of Dr. de Haan that, in Netherlands India, it has been found beriberi could be kept very much in abeyance by adding to the white rice diet a form of green pea which is called "*katchung idj-ju*" and is said to be rich in phosphorus, as well as with the results of the experiments of Dr. Frazier and Dr. Stanton at the laboratory for medical research at Kuala Lumpur, Federated Malay States, who find "that fowls fed on highly polished rice suffer, within from 4 to 6 weeks, from a condition of inflammation of the nerves which closely resembles and may be identical with the condition of the nerves found in beriberi in human beings." All these things taken together suggest some indication of the etiology of the disease. It seems evident that beriberi is primarily a disease of nutrition and metabolism, and in local medical circles by many it is considered doubtful that beriberi is caused by an organism. Perhaps the most widely accepted view is that advocated by Dr. Frazier who points out that in a steady diet of polished rice, as is often the case here in the Orient, the individual fails to obtain sufficient nourishment for the peripheral nerves. He showed that the unpolished rice grain contains beneath the skin or pericarp a layer of cells rich in fat and phosphorus and that the central portion of the rice grain consists entirely of pure starch. In polished rice the outer fat-containing layer has been polished away. Rice prepared in the ordinary native fashion by hand milling contains a large amount of these oil-bearing layers. It is, moreover, the experience of the Bureau of Health of the Philippine Islands that a little meat or even the rice polishings mixed with a diet of white rice will lead to an improvement of beriberi patients in the early stage.

Peculiar Case of Helminthiasis

Last year a young woman very much emaciated generally but with a large protruding abdomen very much like the pot-bellied appearance of the native Filipino pig, came to the Philippine Medical School for treatment. For a long time she had been looked on with suspicion by the inhabitants of the town; it was considered that some curse was cast upon her by the Great Evil Spirit or some of the other numerous evil spirits. Consequently, she came very much into disrepute. According to one view it was thought that she had been loose in her morals and that for punishment she could not give birth to the child but must carry it indefinitely or until the spirits were appeased. After treatment by the American physicians she was delivered of 11 pounds of worms, regained her virtue and soon became a well woman.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 6, 1910.

Infant and Child Mortality

The local government board has issued a report prepared by its chief health officer, Dr. Newsholme, on infant and child mortality in England and Wales. This is the first systematic attempt to investigate the localization and extent and incidentally the causes and effects of a condition regarded as a blot on our civilization. In the last four years there has been a wide-spread awakening to the national importance of child mortality and a largely successful endeavor to diminish it. The object of the present report is threefold: to determine whether the reduction of infantile mortality implies any untoward influence on the health of the survivors to later years; to indicate the communities which are characterized by a continuing high rate of infant mortality, and to assess the different factors by which such mortality is brought about. An extraordinary difference is found in the infantile death-rates in different parts of the country, the mortality per 1,000 births in the first year of life varying from under 90 to over 150. In the first five years of life the mortality is also unequally distributed, being twice as high in some counties as others. Excessive infant mortality implies excessive mortality in later life. Counties having excessive infant death-rates have also excessive death-rates throughout the first twenty years of life, and counties having low infant death-rates have low total death-rates in this period. In the recent decline of infant mortality a higher standard of education, especially in its moral aspects, is considered an important factor. In 1906 and in 1908 national conferences on infant mortality were held and had a great educational influence. The Notification of Births Act of 1907 crystallized public opinion on the subject. Voluntary health associations as well as public health officials then concentrated on the problem of infant mortality and aided in the development of the "sanitary conscience." The main cause of excessive infant mortality is neglect of sanitation. For this the local health authorities are often responsible. So long as they permit excreta to be kept near houses in towns and allow streets to be unpaved domestic sanitation has not a fair chance. In many manufacturing districts, such as Durham, in which the death-rate of children is excessive, the laboring population is compelled, by the inaction of the local authorities, to live on a soil and in an atmosphere laden with filth, which contaminates food, clothing and person. Reports of this condition are constantly made by inspectors of the local government board, but they have no effect on the local authorities. Usually the health officer is a busy local physician who receives a small salary, which these authorities regard as a sop to keep him quiet, or he is unwilling to offend his patients by calling attention to their misdoings. In towns where the health officer devotes his whole time to the work he is more independent.

The British Pharmaceutical Conference

The forty-seventh annual meeting of the British Pharmaceutical Conference was opened at Cambridge on July 26. A large number of delegates attended from all parts of the United Kingdom. The presidential address was delivered by Mr. Francis Ransom, who emphasized the great need for pharmaceutical research and pointed out that the universities of this country are now offering increased facilities for the study of certain branches of science intimately connected with pharmacy. Looking over the vast amount of work done during the last 50 years by pharmacologists on the one hand and by chemists on the other, the question arose as to whether they might not have achieved more valuable results

if there had been a definite system of organization to bring together the two classes of investigators. He suggested that a joint committee should be appointed to consist of representatives of the British Pharmaceutical Conference and of the British Medical Association with a view to organizing medical research between physicians and pharmacists. This committee would be able to establish the value or worthlessness of any remedy. An investigation could be undertaken by the pharmacologists to determine its remedial value, by the physiologist to determine its action, by the chemist to ascertain its composition and by the pharmacist to determine a suitable preparation. Mr. Ransom also referred to the necessity for studying the cultivation of medicinal plants with the object of ascertaining under what condition the best results could be obtained. At present there was much diversity of opinion as to the cause of temporary variation in the quality of certain drugs, and this afforded scope for botanic investigation. Thus there was a remarkable divergence in the percentage of active principle in jalap of commerce; a similar divergence had been noted in belladonna root, some plants yielding thrice as much alkaloid as others. Again, it was generally thought that the value of many medicinal preparations was not entirely dependent on the alkaloids which they contained, but also on other constituents. This question opened up a wide field for research.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 5, 1910.

The Third International Congress of Educational Hygiene

The formal opening session of the third Congrès international d'hygiène scolaire was held on August 2 at the Sorbonne, under the honorary presidency of Professor Landouzy, dean of the Paris college of medicine. The congress was attended by 1,600 persons, most of whom were from the northern countries, especially Sweden, Norway, Denmark and England. The vacation season was both favorable and unfavorable. It brought to Paris a great number of foreign members, but many French members were kept away by attendance at other scientific meetings, as I mentioned in a previous letter (THE JOURNAL, July 23, 1910, p. 325). In his opening address, Dr. Landouzy took for his subject the rôle of the physician in educational hygiene. He showed how much this rôle has been enlarged since to-day on the school physician rest many duties, such as the sanitary supervision of the school, the prophylaxis of contagious diseases, the keeping of the sanitary records of the school building and of the individual pupils; the instruction of the teachers in hygiene, and the consideration of the programs, methods and the hours suitable for the various ages, the two sexes and for the various subjects of instruction. The great philosopher Descartes wrote almost prophetically in the seventeenth century: "Principally also, for the preservation of health, which is doubtless the first good thing, and the foundation of all other good things of this life, if it is possible to find anything which will make man wiser or more skilful than he has been hitherto, I believe that we must seek it in medicine."

The congress is divided into eleven sections, some of which are presided over by physicians and some by educators. The first section, that on school buildings and furniture, is presided over by Dr. J. A. Courmont, professor of hygiene in the Lyons college of medicine; the third, that on medical inspection of schools, by Dr. Le Gendre, physician of the hospitals of Paris; the fifth, that on the prophylaxis of contagious diseases, by Dr. Hutinel, clinical professor of children's diseases in the Paris college of medicine; the eighth section, that on the instruction of teachers in hygiene, by Dr. Pinard, professor in the Paris college of medicine; the eleventh section, that on the hygiene of the sight, the hearing, the mouth and the teeth, by Dr. Truc, professor of clinical ophthalmology at the Montpellier college of medicine. The other sections are concerned with the physical education, hygiene outside of schools (fresh-air schools, vacation colonies), hygiene among the teaching force, programs and methods of instruction in their relation to educational hygiene, special schools for abnormal children, etc.

Besides the work in sections, the congress has already held several general sessions. One of these sessions was devoted to the question of the standardization of the methods of the physical examination of pupils, on which a report was made by Dr. Méry, agrégé professor at the Paris college of medicine, and Dr. Dufetel, medical inspector of schools of the city of Paris, who recommend that the weight, the height

and the circumference of the thorax of pupils be measured in a uniform way, so that the results obtained by various observers may be compared to advantage. The general session devoted to the delicate question of the sexual education of children brought together a large attendance. Dr. Doléris, member of the Académie de médecine of Paris, in his paper especially emphasizes the necessity of organizing in the normal schools, special courses, taught by physicians, for the purpose of enabling teachers to give sexual instruction to their pupils.

The congress passed a resolution in favor of the adoption of the vertical handwriting and of the erection of bath-rooms and shower baths in primary schools. It also advocated dental inspection by specialists, each school semester, the offices of inspecting dentist and practicing dentist being distinct, and the family being allowed entire liberty in the choice of the practicing dentist. The congress also voted the adoption of the conclusions of the report of Dr. Cazalet, president of the Union des Sociétés de gymnastique de France, in regard to the necessity of rendering physical education compulsory in all educational establishments.

Personal

Dr. A. Gilbert, professor of therapeutics at the Paris college of medicine, has been recently appointed professor of clinical medicine to replace Dr. Dieulafoy. The council of the college unanimously proposed for the chair of therapeutics, thus made vacant, Dr. Marfan, *agrégé* and physician of the Paris hospitals. The new professor is known especially for his work on pediatrics. He has published a treatise on breast-feeding and artificial feeding, which has had great success.

At the Bordeaux college of medicine, Dr. Lagrange, *agrégé*, has been chosen professor of clinical ophthalmology in place of Dr. Badal. At the same college, Dr. Auché has been chosen professor of hygiene, replacing Dr. Layet. At the college of Nancy, Dr. Hoche, *agrégé*, has been chosen professor of pathologic anatomy.

Measures Adopted Against Cholera

The *Journal Officiel* has just published a decree, stating the sanitary measures to be taken for preventing the importation of cholera into France. Every person coming from a cholera-infected region who presents suspicious symptoms on arriving at the French frontier will be detained at the frontier station by a special commissioner and isolated. The following articles are prohibited from entering France by the land frontier: soiled clothing and bedding, rags (except baled rags, transported in bulk) and fruit and vegetables growing under the soil or on the surface of the soil. Every person giving lodging to a traveler who comes directly from infected regions, or has left such regions within less than eight days, is bound to report the fact to the mayor of the commune, or in Paris, to the prefect of police, within twenty-four hours. Every case suspected of being cholera must be immediately reported to the mayor's office, by the physician, the head of the family, the persons in charge of the patient or by those with whom he is lodging. Infractions of this decree are punishable by imprisonment of from fifteen days to three months, and by a fine of not more than \$100 (500 francs).

Yellow Fever

An English packet, the *Augustine*, bound from New York to Liverpool, was to have put in at Cherbourg, but several cases of yellow fever having broken out on board, the packet was obliged to put in at Havre, in order to be quarantined and put in sanitary condition.

Rioting by Pharmacists' Assistants

As I mentioned in one of my previous letters, the association of pharmacists' assistants obtained from the pharmacists, after long negotiations, the closing of the drug-stores at 9 o'clock, in all of the arrondissements of Paris, beginning August 1. But out of 1,500 of the drug-stores in Paris, four or five situated in the center, the special feature of whose business was to keep open all night, refused assent to this agreement, and continued open as in the past. To compel them to close, the clerks in the association decided to employ the methods of violence which were used by the employees of shops for novelties and the grocers' clerks. About three hundred collected before the drug-stores in question and created a disturbance. The threatened pharmacists have no intention of yielding while the drug clerks have declared their intention of renewing the agitation each night. The police is going to take measures to protect the pharmacists.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 27, 1910.

Personal

July 16 the senior of German pediatricians, and indeed of pediatricians in general, Prof. E. Henoch, celebrated his ninetyeth birthday. He has lived in Dresden since leaving the Berlin faculty and enjoys comparatively great physical and mental vigor. At his jubilee congratulations were sent to him from all sides, including those of the imperial couple, who regard themselves as indebted to him for the care of their children.

The University of Edinburgh has awarded Professor Bier the Cameron prize, which was offered by the university for that benefactor of mankind who should have made an especially important step in the progress of medicine during the last five years.

Professor Feer of Heidelberg has received a call to Zürich as pediatrician.—The search for a successor of Professor Bumm, who, as is well known, has received the chair of Professor Olshausen, is now happily finished. In order to avoid further declinations a gynecologist was chosen who it could be assumed would surely accept, namely, Professor Franz of Kiel. Professor Franz is a former assistant of Bumm, aged 36; he has accomplished little of importance and is scarcely known in the wider German medical circles, to say nothing of foreign countries. The same procedure has been followed here as in the case of the successor of von Leyden, when Professor His was selected because it was thought that no better investigator could be got. In this way, at any rate, the fame of the Berlin medical faculty is diminishing, since it has lost Virchow, Helmholtz, Dubois Reymond and Koch.—Professor Olshausen has been given a title of nobility on his departure from the faculty. Medical titles of nobility with us will soon be as common as blackberries.

Insurance Against Mental Disease

The attempt to transfer the burdens of the individual by means of insurance to the shoulders of the many has been extended by a German psychiatrist (Medical Councillor Fischer) to the provision for the care of the insane. The idea of insuring against insanity may seem strange at first sight; but insanity is not so rare and when it occurs it affects the life of the family quite as much as any other misfortune against which insurance is commonly secured. Fischer recommends insurance in connection with an institution for annuity and life insurance. In Nuremberg there has been for twenty-five years a society that makes a business of such insurance.

Admission to the Berlin Faculty

This question, which I have previously treated, has reached a new stage. The minister of education has informed the faculty that he contemplates repealing the secret ballot in the voting on the admission of new privat-docents. This method was introduced by the faculty in 1904 because its members believed that in this way their mutual independence would be better preserved, especially when the election of an assistant of an influential professor was under consideration. The faculty will undoubtedly agree with the view of the minister, inasmuch as this plan has had in fact no influence on the great excess of privat-docents admitted. As to the proposal to elect privat-docents for a short period, the minister has not yet expressed an opinion, but his decision may be unfavorable. For the removal of the nuisance complained of there remains as the surest method simply the principle to impose the strictest scientific requirements for admission. Evidence in favor of this is afforded by the fact that in the last semester not a single privat-docent has been admitted to the medical faculty.

Campaign Against Alcoholic Intemperance Among Children

To avoid the dangers that the use of alcohol entails on children the German Association Against the Misuse of Alcoholic Beverages prepared a warning circular which is to be distributed to parents under the direction of the Prussian department of education on occasion of public vaccination, medical inspection of schools, etc. The teachers are to speak of the circulars while teaching and place them in the school books, and they are also distributed by the midwives to lying-in women and by the officials at the announcements of births and weddings, and by factory managers, paymasters, ministers, etc. Altogether in this way 2,000,000 copies of this circular were distributed in 1909.

Marriages

HARRY D. CARTMELL, M.D., to Miss Oradelle DeMoulin, both of Greenville, Ill., August 11.

C. HUGH McKENNA, M.D., to Miss Evelina Marguerite Beauvais, both of Chicago, August 10.

HERBERT SEYMOUR GAY, M.D., to Miss Marjorie Florence Dearborne, both of Boston, August 3.

WARREN D. MILLER, M.D., Weaver, W. Va., to Miss Louise Davis Lawrence, at Baltimore, August 6.

THOMAS ROY CAMPBELL, M.D., Arthur, N. D., to Miss Margaret Adile Luse, of Iowa City, Iowa, August 11.

OSCAR R. MICKLETHWAIT, M.D., Portsmouth, Ohio, to Miss Laura Allen, of Jackson, Ohio, at St. Charles, Mo., recently.

Deaths

William Frederic Ridgway, M.D. Jefferson Medical College, Philadelphia, 1904; a member of the American Medical Association; pathologist to the Atlantic City, (N. J.) Hospital; died at that city, August 5, following an operation for appendicitis, aged 38. Resolutions were passed on his death by the Atlantic County Medical Society.

William Newlon Miller, M.D. Jefferson Medical College, Philadelphia, 1852; a member of the Medical Society of the State of Pennsylvania; a veteran of the Civil War; said to have been the oldest practicing physician in Allegheny County; died at his home in Pittsburg, August 3, from pneumonia, aged 83.

James Lot Bullock, M.D. Meharry Medical College, Nashville, Tenn., 1895; a member of the National Medical Association; secretary of the North Carolina State Medical, Dental and Pharmaceutical Association for several years; died at his home in Greensboro, February 14, from tuberculosis, aged 39.

Silas Smith Cartwright, M.D. College of Physicians and Surgeons, New York City, 1853; a veteran of the Civil War; a member of the legislature from Delaware County in 1884 and 1885; postmaster of Roxbury, N. Y.; died at his home in that place, July 31, from heart disease, aged 76.

Abraham S. Raudenbush, M.D. Jefferson Medical College, Philadelphia, 1864; a member of the American Medical Association; one of the founders of the Reading (Pa.) Hospital and for some years a member of its staff; died suddenly at Pottstown, Pa., August 5, aged 69.

Edwin C. Buell, M.D. New York Homeopathic Medical College and Hospital, 1876; a member of the California State Board of Medical Examiners from 1901 until 1907; of Los Angeles; died in Genoa, Italy, while touring Europe, July 20, from appendicitis, aged 57.

James P. Moore, M.D. Medical College of the State of South Carolina, Charleston, 1852; a member of the American Medical Association; surgeon in the Confederate Army during the Civil War; died at Yazoo, Miss., August 5, from cholera morbus, aged 83.

George B. Jennings, M.D. Medical College of Virginia, Richmond, 1860; a member of the Medical Society of Virginia; for twelve years superintendent of schools of Green County, Virginia; died at his home in Ruckersville, August 2, from heart disease, aged 72.

Francois H. DeVaux, M.D. Hospice Bicetre, Paris, 1867; for a number of years United States army surgeon; at one time superintendent of the State Board of Health of North Dakota; died at his home in Chicago, August 7, from angina pectoris, aged 59.

Chesterfield W. Harper, M.D. George Washington University, Department of Medicine, 1860; contract surgeon for the United States army during the Civil War; was found dead in his room at Russellville, Ky., August 5, from heart disease, aged 74.

Theodore M. Togus, M.D. University of Vermont, College of Medicine, Burlington, 1886; a member of the New Hampshire Medical Society; a member of the board of health of Hookset, N. H.; died at that place, July 28, from heart disease, aged 57.

Joseph R. Ryan, M.D. University of Louisville (Ky.) Medical Department, 1865; surgeon in the Union army during the Civil War; of Des Moines, Iowa; died at the home of his daughter in Waterloo, Iowa, August 2, from cancer, aged 70.

John J. A. Burke, M.D. University of Buffalo (N. Y.) Medical Department, 1877; for nine years health officer of Rochester, N. Y.; died at Clifton Springs, N. Y., where he had gone for treatment, August 1, from paralysis, aged 60.

Frank Camm, M.D. University of Maryland, School of Medicine, 1885; a member of the Medical Society of Virginia; assistant surgeon at Camp Alger during the Spanish-American war; died at Lynchburg, August 5, aged 62.

Jesse S. Reagan, M.D. Rush Medical College, Chicago, 1854; a member of the Indiana State Medical Association; a practitioner of medicine in Indiana for fifty-seven years; died at his home in Lebanon, February 9, aged 81.

Levi Drakely Rood, M.D. University of Vermont, College of Medicine, Burlington, 1881; a member of the American Medical Association; died at his home in Des Moines, Iowa, August 8, from appendicitis, aged 49.

Charles Edwin Shumard, M.D. Cincinnati College of Medicine and Surgery, 1891; a member of the Cincinnati Academy of Medicine; died at his home in Venice, Ohio, August 2, from angina pectoris, aged 48.

Nathaniel Seward Parsons, M.D. University of Vermont, College of Medicine, 1874; a member of the Illinois State Medical Society; died at his home in Kewanee, Ill., August 8, from Bright's disease, aged 56.

James Henry, M.D. Bellevue Hospital Medical College, New York City, 1870; a veteran of the Civil War; formerly of LaHarpe, Ill.; died at his home in Galesburg, Ill., August 2, from paralysis, aged 69.

Nathaniel C. Wilson, M.D. University of Pennsylvania, Department of Medicine, 1853; a retired practitioner of Houston Heights, Texas; died at his home in that city, August 5, aged 93.

John Adam Krug, M.D. Medico-Chirurgical College of Philadelphia, 1889; a member of the Medical Society of the State of Pennsylvania; died at his home in Philadelphia, August 6, aged 54.

William Gilman Perry, M.D. College of Physicians and Surgeons, New York City, 1847; a trustee of the state hospital for many years; died at his home in Exeter, N. H., August 2, aged 87.

Myron E. Knapp, M.D. Chicago Homeopathic Medical College, 1882; of Detroit, Mich.; died at the home of his sister in Byron, Mich., July 29, from cerebral hemorrhage, aged 62.

Charles S. Parker, M.D. Castleton (Vt.) Medical College, 1847; a practitioner at Three Mile Bay, N. Y., for more than sixty years; died at his home in that place, July 28, aged 89.

Gustave Aftel, M.D. University of Warsaw, Russia, 1869; a member of the Ohio State Medical Association; died at his home in Toledo, August 5, from septic poisoning, aged 60.

John H. Whitehead, M.D. Homeopathic Hospital College, Cleveland, Ohio, 1874; a veteran of the Civil War; died at Bowling Green, Ohio, August 6, from diabetes, aged 69.

Solomon Secord, M.D. Medical Department of Victoria College, Toronto, Ont., 1856; a Confederate veteran; died suddenly at his home in Kincardine, Ont., April 24, aged 76.

Charles H. Moore, M.D. University of Pennsylvania, Department of Medicine, 1868; a veteran of the Civil War; died at his home in Wheeling, W. Va., July 28, aged 67.

Joseph H. Lukens, M.D. Eclectic Medical College of the City of New York, 1875; a retired practitioner of Seattle, Wash.; died at his home in that city, July 23, aged 67.

George William Harrison, M.D. Miami Medical College, Cincinnati, 1873; formerly of Newtonia, Mo.; died at Chester, Mo., August 2, from heart disease, aged 58.

Frederick Augustus Jewett, M.D. Harvard Medical School, Boston, 1852; a member of the Massachusetts Medical Society; died in Grafton, February 8, aged 85.

William Leslie Dewees, M.D. Medical College of Indiana, Indianapolis, 1883; died at Mooresville, Ind., August 5, from cerebral hemorrhage, aged 60.

Edwin Cowles, M.D. Hahnemann Medical College, Chicago, 1866; died at his home in El Dorado, Kan., July 28, from paralysis agitans, aged 80.

John Jackson Brower, M.D. Eclectic Medical Institute, Cincinnati, 1869; died at his home in Coshocton, Ohio, July 30, from paralysis, aged 71.

Lycurgus Coon, M.D. Physio-Medical Institute, Cincinnati, 1868; died at his home in Springfield, Mo., August 6, from tuberculosis, aged 72.

Pharmacology

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION]

AROMATIC DIGESTIVE TABLETS

W. A. Puckner and L. E. Warren

It has been amply demonstrated¹ that pepsin and pancreatin, when in solution, mutually destroy each other; if the solution be acid, the pepsin destroys the pancreatin; if alkaline, the pancreatin destroys the pepsin. By using the characteristic effect of pepsin on proteids in acid medium and that of pancreatin on proteids and starches in an alkaline solution it can readily be demonstrated that commercial liquid preparations labeled as containing both of these ferments actually contain only one ferment. They are misbranded.

Besides the liquid a goodly number of solid preparations, chiefly tablets, containing pepsin and pancreatin are offered to the profession. Among these are tablets consisting simply of pepsin and pancreatin. Since pepsin and pancreatin interact only when in solution, it is quite possible to prepare tablets which contain these ferments. The use of these tablets is unscientific, since one or the other of the ferments is destroyed when it comes in contact with the fluids of the digestive tract. In addition to simple tablets containing pepsin and pancreatin only there is at present a host of "digestive tablets" on the market. Among these are some which must be classed with the "digestive impossibilities" (Reports of the Council on Pharmacy and Chemistry, 1910, vol. 1, p. 41). The preparations referred to are tablets claimed to contain pepsin, pancreatin, diastase, hydrochloric acid and lactic acid. When it is considered that the United States Pharmacopeia defines hydrochloric acid as "a liquid composed of 31.9 per cent. by weight of absolute hydrochloric acid ($HCl=36.16$) and 68.1 per cent. of water," i. e., a solution of hydrogen chlorid, a gas, in water, it would at first appear that the incorporation of any appreciable quantity of hydrochloric acid in tablets would be impracticable. Hydrochloric acid, however, possesses to a limited extent the property of combining loosely with protein substances so that it becomes possible to bring about its combination with pepsin and similar substances to form compounds which are relatively stable at ordinary temperatures. Because of the volatility of the free acid and its limited combining power with protein substances (100 gm. boiled beef combined with 2 gm. absolute hydrochloric acid²), the quantity of acid in any tablet can never be large, much less than sufficient to be of any therapeutic value.

A number of firms offer "digestive tablets" for sale having formulas of which the following may be considered typical:

Sacch. Pepsin.....	4	grains
Pure Pancreatin.....	1	grain
Diastase	¼	grain
Aromatic Powder.....	¼	grain
Lactic Acid.....	¼	grain
Hydrochloric acid.....	¼	grain

Some manufacturers use United States Pharmacopeia pepsin in place of the saccharated article; others do not give the exact quantities of hydrochloric acid which their product is supposed to contain, but make use of the indefinite expression "q. s.," still others state merely that hydrochloric acid is present, but make no claim whatever concerning the quantity.

From purely theoretical considerations it is possible that the tablets referred to might contain appreciable amounts of hydrochloric acid. Since the formulas for some of the tablets furnish no information concerning the content of hydrochloric acid, it seemed worth while to determine the quantity, if any, actually present in some of the tablets on the market. Accordingly a trade package of "digestive aromatic tablets," as put up under the label of each of six American manufacturers, was purchased and submitted to examination in the Association laboratory.

Qualitative tests made on specimens from each brand of tablets demonstrated the absence of uncombined hydrochloric

acid in each. Further tests³ showed that hydrochloric acid in protein combination was present essentially in the amounts claimed in three of the specimens. In two of the others hydrochloric acid was entirely absent; in the remaining one only the merest traces of hydrochloric acid could be found.

H. K. MULFORD COMPANY

"DIGESTIVE AROMATIC"

"Pepsin, Sacch.	4	grains
"Pancreatin	1/2	grain
"Diastase	1/16	grain
"Acid Lactic.....	1/8	grain
"Acid Hydrochloric.....	1/8	grain
"Aromatic Powder.....	1/4	grain

Dose: 1 or 2 tablets.

In the above formula each tablet is said to contain ½ grain hydrochloric acid. This amount is equivalent to 0.002584 gm (1/25 grain) absolute hydrochloric acid. Analysis demonstrated that each tablet contains about 0.00267 gm. hydrochloric acid (absolute HCl) or essentially the amount claimed. The average dose of diluted hydrochloric acid United States Pharmacopeia is 1 c.c., equivalent to 0.1049 gm. absolute hydrochloric acid. To obtain this quantity from the above preparation the patient would be required to swallow more than three dozen of the tablets.

WM. S. MERRELL CHEMICAL COMPANY

"DIGESTIVE AROMATIC, 5 GRAINS"

"Pepsin	80	parts
"Pancreatin	10	parts
"Diastase	1	part
"Acid Lactic.....	1	part
"Acid Hydrochloric.....	3	parts
"Aromatic Powder.....	5	parts

Calculation shows that each tablet should contain about 0.0031 gm. of absolute hydrochloric acid. The analysis indicated that each tablet contains about 0.0030 gm. hydrochloric acid (absolute HCl) in protein combination, or practically the amount claimed. One pharmacopeial dose of hydrochloric acid is contained in 35 of the tablets.

PARKE, DAVIS & COMPANY

"DIGESTIVE AROMATIC"

"Saccharated Pepsin.....	4	grains
"Pure Pancreatin.....	1	grain
"Diastase	¼	grain
"Aromatic Powder.....	¼	grain
"Lactic Acid.....		
"Hydrochloric Acid.....		

Dose: 1 to 3 tablets.

Chlorid is present in small amounts, but quantitative examination indicated that hydrochloric acid, either free or in protein combination, is absent. An ammonium salt is present in small quantities.

SHARPE & DOHME

"DIGESTIVE AROMATIC"

"Pepsin, Sacch., U. S. P.....	4	grains
"Pancreatin, pure.....	1	grain
"Diastase	¼	grain
"Aromatic Powder.....	¼	grain
"Lactic Acid.....	q. s.	
"Hydrochloric Acid.....	q. s.	

Small quantities of chlorid are present. Quantitative examination indicated that hydrochloric acid in protein combination is present only in very small amounts, each tablet containing but about 0.00034 gm. of absolute acid, or about 0.34 per cent. of the pharmacopeial dose. Ammonia is absent. Inasmuch as more than 300 of these tablets would be required to furnish a pharmacopeial dose of hydrochloric acid, this firm's interpretation of the expression "q. s." would prove interesting.

TRUAN, GREENE & COMPANY

"SYNERGIA"

"Synergia" is claimed to be composed of "pepsin, pancreatin, veg. diastase, lactic acid, hydrochloric acid and aromatics; dose, 1 to 3 tablets." The specimen contains no hydrochloric acid, either free or protein combination. A trace of ammonia and small quantities of chlorid were found.

1. U. S. Pharmacopeia, 8th revision, p. 334; THE JOURNAL A. M. A., Feb. 2, 1907, and Feb. 9, 1907.
2. Hemmeter, Diseases of the Stomach, Edition 3, p. 250.

3. The details of the analysis will be sent on receipt of a stamped envelope; they will also be published in the annual report of the Chemical Laboratory.

THE FRASER TABLET COMPANY

"Pepsin Sacch.	80 parts
"Pancreatin, Pure.	10 parts
"Diastase	1 part
"Lactic Acid.	1 part
"Hydrochloric Acid.	3 parts
"Aromatic Powder.	6 parts

Dose: 1 or 2 tablets.

"Each tablet represents (5) grains of the above mixture."

According to the formula hydrochloric acid (31.9 per cent. absolute HCl) represents 3 parts in 101 of the preparation from which the tablets are made. Each tablet (containing 5 grains of the mixture) should have 0.00307 gm. absolute hydrochloric acid. Analysis showed that each tablet contains hydrochloric acid in protein combination equivalent to an average of 0.003066 gm. absolute hydrochloric acid, or essentially the amount claimed. It would be necessary to give 34 tablets to administer a pharmacopeial dose of hydrochloric acid.

EDITORIAL NOTE: The above indicate that the use of such tablets is irrational, unscientific and should be condemned. The only constituent of these tablets, other than the aromatics, which might possibly be of benefit in stomach troubles, is the pepsin. But even if it be assumed that the diastase and pancreatin could exert their characteristic effects, their aid to digestion (metabolism) would be but slight, because their amounts in the tablets are too small to be of any value.

It is claimed that the tablets contain diastase in amounts varying from 1/20 to 1/4 grain. Assuming the diastase used to be of first-class quality, i. e., capable of converting 200 times its own weight of starch into soluble products, the quantity in one tablet would be capable at the most of digesting but from 10 to 50 grains of starch, an amount equal at the most to but a small spoonful of oatmeal or a very dainty bite of bread. In the same way the quantity of pancreatin is insufficient to be of any material aid in digestion should it in some way escape destruction in the stomach and still retain its full activity when it reaches the alkaline juices of the intestines. One grain of pancreatin of full United States Pharmacopeia strength will digest only 25 grains of starch or the proteids in about 100 c.c. of milk.

Saccharated pepsin, which was formerly official, was required to digest 300 times its own weight of moist egg albumin, while the pepsin that is now official is required to digest ten times that amount, or 3,000 times its own weight. It is evident, therefore, that the tablets should contain sufficient pepsin to digest appreciable amounts of protein. No intelligent physician would prescribe these tablets simply for the pepsin they contain or are supposed to contain; if he wanted to give pepsin he would prescribe the drug in the simple form.

Clinical experience has shown that in the majority of cases of so-called dyspepsia the stomach contents contain too much rather than too little hydrochloric acid, and wherever there is a sufficiency of acid there is usually no decrease in the secretion of pepsin. In many, of such cases, too, digestion is normal, or even more active than normal, but even when it is imperfect there is seldom any lack of pepsin.

Insufficient digestive power is most often due to a deficiency of hydrochloric acid and not to lack of pepsin in the stomach contents. In the tablets under consideration, however, hydrochloric acid is present—if at all—in the most ridiculously minute quantities; quantities that are so small as to preclude any therapeutic effect except that due to the psychic element.

These tablets, with their six or more ingredients, are typical "shotgun prescriptions." Such prescriptions catch the unthinking doctor as well as the self-drugging public, for, while clinical experience and physiologic experiments have demonstrated that the old ideas regarding the value of these digestives and ferments were erroneous, the public and many members of the medical profession still seem to be influenced by the old theories.

In conclusion we must not lay all the blame on the manufacturing firms for supplying these absurd combinations; the physician who prescribes them should assume a large share of it. If the doctors did not use them the manufacturing concerns would soon stop putting them on the market. We hope, however, that those manufacturing concerns that like to be classed as reputable will cease to disgrace their catalogues with what they know to be therapeutic absurdities.

Lung Germine

To the Editor: I was much interested in the article on "Lung Germine" that appeared in *THE JOURNAL*, Aug. 6, 1910. Two years ago, when I was at Adell, Wis., a young man, aged 26, came to my office complaining of "lung trouble." His temperature was 103 F., pulse 120, appetite poor and he had lost weight in about eight weeks from 170 to 130 pounds. He complained of great weakness, shortness of breath, persistent cough and sleeplessness. I found a tuberculous patch in the right upper lobe and the examination of the sputum was positive. I put him on the open air treatment, rest, diet, etc. Six months later his temperature was normal; his weight had increased from 130 to 165 pounds, expectoration and cough very much decreased; he slept well, had a ravenous appetite and was able to take long walks without tiring himself.

About this time he called on me and wanted to know when he could go to his work again as bookkeeper. I advised him to wait another six months. This apparently seemed too long for him and he got in correspondence with the Lung Germine Co., and began to take their Lung Germine. Immediately after he commenced using it, he became weaker, began to show signs of cyanosis in the tips of his fingers and ears; was very restless, lost appetite and could not sleep. From day to day he grew worse, but on communicating with "Dr." C. R. Wendt of the Lung Germine Company, he was told to keep right on with the medicine as these were favorable symptoms and he surely would get well. In 10 or 12 days I was called in to see him. I found him very cyanosed over the entire body with frothy expectoration from the mouth and nose and very rapid breathing. Five minutes later he was dead. I called a coroner's inquest and signed the death certificate; cause of death due to the use of Lung Germine.

After the patient's death, I wrote to the Michigan State Board of Medical Examiners and asked for information concerning this Dr. C. R. Wendt. The secretary informed me that Dr. C. R. Wendt had no license to practice medicine in Michigan.

C. U. SENN, M.D., Milwaukee, Wis.

COMMENT: The experience of our correspondent seems to verify the statement made in the exposé of this wretched fraud, viz., that the nostrum is not only worthless but positively dangerous. If it were possible to get information on the point, we do not doubt that it would be found that hundreds of poor victims had had their lives very materially shortened by the use of this vile concoction.

"Every man who trades in this market, whether he pockets the profits of the maker, the purveyor or the advertiser, takes toll in blood. He may not deceive himself here, for here the 'patent medicine' business is nakedest, most cold-hearted. Relentless greed sets the trap and death is partner in the enterprise."

Correspondence

One Medical Aspect of the Prize Fight

To the Editor: The medical man may read much between the lines as to the reason for the defeat of a former champion in a recent famous prize-fight. There was much more at the bottom of this inglorious disaster than mere inability to get back into training.

The stress laid on the reports, at the time of the early arrangements for the fight, that the former champion had been examined by noted medical men to see if he could expect to get into good training again, together with the current rumors as to the habits of dissipation common to this class of athletes, would give ground for the suspicion that there may have been a definite and specific reason for such a careful preliminary examination. One noted ring follower states that no man with a normal brain could have been so utterly helpless before an opponent; another that "he was as helpless as an old woman;" another writer states that the victor delivered fifty-five blows while the loser gave but fourteen, and that not one of these did any particular damage. One of the seconds states in an interview that the loser

swayed so in walking down the aisle to the ring that he (the second) twice supported the champion by laying a hand on each shoulder to keep him from falling. The picture published by a prominent national weekly shows the fighter with his feet spread so far apart that the two legs defined an equilateral triangle. The prize-fighter complained afterward that he saw double during the fight; that he could not estimate the distance of his opponent; that he saw plenty of openings for good blows but could not get his fist there in time. The papers were filled with reports of the attempts of reporters and visitors to see the champion in his boxing practice, but he would not box before prying eyes, even practicing at 3 a. m. to avoid observation.

Such evidences of mental failure, ataxia and incoordination point almost certainly toward some degenerative process affecting the nervous system, the cause of which it is not difficult to imagine.

J. N. HALL, M.D., Denver.

Fixing the Eyeball in Cataract Extraction

To the Editor: Since the publication of my paper, read at the St. Louis meeting, I have been informed by my friend, Dr. Ziegler of Philadelphia, that my method of fixing the eyeball in cataract extraction was first resorted to by Macnamara. The following is quoted from page 54 of the fourth edition of his book: "Suppose the right eye is to be operated on; the surgeon, standing behind his patient, with a pair of fixing forceps, seizes a fold of the conjunctiva, together with the tendon of the internal rectus, so as to have a steady, firm hold on the eyeball." On page 56 he mentions the fact that the tendon grasp is continued while he dislocates and delivers the cataract with a scoop. Of course I must surrender my claim of originality, so far as the grasp of the tendon of the internal rectus muscle is concerned. My astonishment is that this method, although introduced prior to 1882, disappeared from both practice and literature, and I knew nothing about it until it occurred to me to put it into practice. There is no other method of fixation comparable to it. My other claims, as made in my paper, have not been refuted, and I am sure cannot be. Please publish this as a full surrender of my claim on fixation of the globe by a grasp of a tendon of the internal rectus.

G. C. SAVAGE, Nashville, Tenn.

The Dependence of Neurology on Internal Medicine *

To the Editor: I think the article by Drs. Joseph Collins and Pearce Bailey, of New York (THE JOURNAL, July 30, 1910, p. 393), was read with great interest and received extensive comment by those of us who are interested in the teaching of neurology. As a general proposition most of the premises advanced by the authors of this article are correct. All of us are agreed that neurology has been neglected, both in the lecture room and hospital ward, but the statement that "In all America there is scarcely a general hospital with neurologic wards worthy of the name, etc.," will not hold water. So with the statement "The profession who teaches them having no hospital patients of their own can demonstrate only such patients as are able to walk to the clinic;" and so on throughout the entire article are many statements that are really misleading and do an injustice to some of our neurologists and general hospitals.

Last year I did neurologic work at the University of Pennsylvania. I found the neurologic wards in Blockley Hospital properly organized and containing over four hundred patients; among this number could be found all of the ordinary nervous diseases and many of the unusual and rare ones. These wards were organized in 1877 by Dr. Charles K. Mills, and all of the material found in them is available for teaching purposes by the medical colleges of Philadelphia; and for many years ward classes have been a prominent feature in neurologic teaching in this hospital.

* Another letter on this subject is published in THE JOURNAL Aug. 13, 1910, page 613.

The attending neurologic staff at Blockley has an equal standing with the attending physicians and surgeons. Cases are assigned directly to them; they are studied by separate interns and the department of neurology is just as much an independent unit of the organization controlling the hospital, as is the surgical or medical. Post-mortems are conducted under the direction of the attending neurologist, and the material is properly worked up and studied by his assistants and the hospital pathologist.

Neuropathology is comparatively new in America; but this branch is now receiving careful attention in all of our medical schools. I have no doubt that within a few years the courses in this branch offered to students in America will compare very favorably with those given in the laboratories abroad; in fact I have been told by men who have taken extensive work in Europe that the work of American investigators and teachers of neurology is attracting attention and receiving the favorable consideration to which it is entitled.

So while we cannot point to any endowed institutions for the special study of nervous diseases, let us be thankful that most of our new municipal hospital boards are recognizing the importance of giving this branch more attention, and buildings are being constructed with the idea of providing for the better care and proper study of nervous cases, and that competent neurologists are being appointed on the staffs holding equal rank with the surgeon and internist.

R. E. CASTELAW, Kansas City, Mo.

Registration of Foreign Physicians

To the Editor: Dr. Hoenes in his letter on this subject (THE JOURNAL, Aug. 6, 1910, p. 520) certainly makes an exceedingly important, though neglected, point. During the development of North Dakota, Canadian physicians rushed in, and now very largely occupy the land. What is true of North Dakota is probably true of other northern states. But when one of us wants to get into some virgin territory in Canada, he is blocked at the very start. This matter should be taken up by our legislatures. I hope that you will use your influence and call attention to it often.

C. E. McREYNOLDS, M.D., Goodrich, N. D.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WHAT IS THE DISEASE?

To the Editor:—A peculiar disease has been observed in a family. It resembles hoof and foot disease in animals. The attack is sudden; the disease starts between the toes and spreads to the heel. Itching, large vesicles which run together, high fever, delirium, and a very bad odor, like decayed animal matter, are features. The pain after four days extends up to the leg. The disease seems to be highly infectious. What can it be?

F. P. DORSEY, Hartington, Neb.

CAPITALIZATION IN PRESCRIPTIONS

To the Editor: In writing the following in prescriptions should the I and P be capital letters?

R. Fluidextracti cannabis indicæ
Balsami peruviani

P. W. BUSHONG, Pittsburg, Pa.

ANSWER: In writing the Latin of prescriptions there is a tendency to follow national usage. Thus in foreign pharmacopœias and prescriptions, nouns are frequently capitalized as in the native language, while the adjectives, even when derived from proper names, begin with a lower-case letter. On the other hand, the custom in Latin texts is to capitalize the adjectives derived from proper names, i.e., *populus Romanus*. This would seem to afford authority for beginning the words referred to in the query with capitals. Most books on medical Latin capitalize the second term of a pharmaceutical title in prescriptions as a rule, so that they afford no guide in the particular case under discussion. The usage of works on pharmacology is divided but the majority print these words with lower-case letters. There is a tendency in English for the proper adjective to change its capital initial to lower-case after long usage, and this may account for the similar tendency in the Latin of prescriptions. We may conclude therefore that the preponderance of the best usage is in favor of using lower-case letters.

ELECTRIC ANESTHESIA

To the Editor:—Please give references to be found in medical literature, if any, giving facts concerning the use of electricity as an agent for producing anesthesia. D. M.

- ANSWER.—Robinovitch, L. G.: *Electric Anesthesia*, Jour. Ment. Path., viii, No. 3, 1908.
Leduc, S.: *Electric Sleep*, Presse Médicale, 1907, xv, 129. Abst. in THE JOURNAL, April 6, 1907, p. 1220.
Tait, D., and Russ, R.: *Electric Sleep*, THE JOURNAL, Nov. 13, 1909, p. 1611.
Johnson, M. M.: *Electric Anesthesia*, Med. Rec., April 23, 1910; abstr. in THE JOURNAL, May 7, 1910, p. 1577.

ACUTE INDIGESTION AND SUDDEN DEATH

To the Editor:—Please give me references to some of the latest literature on so-called acute indigestion as the cause of sudden death. W. H. J.

ANSWER.—We find no references to this subject in recent literature. Brouardel ("Death and Sudden Death," Edition 2, 1902) refers to cases in which sudden death was supposed to be due to acute indigestion, but concludes that the evidence that indigestion was the sole or principal cause is insufficient. He says (p. 274), "I have read all the cases which authors have recorded, but I have not met with a single case in which preexisting lesions in other organs than the stomach were not sufficient to account for death; in most cases the patient had some renal affection, or was convalescent from typhoid fever."

X-RAY STERILITY

To the Editor:—Is the sterility produced by the x-ray permanent, or only temporary; and how long exposure will produce the same? Does it affect male and female alike? B. Y.

ANSWER.—The duration of sterility produced by the x-ray depends on the length of exposure, the distance of the tube, etc. The effect will be permanent if the exposures are of sufficient duration. The organs of the female are better protected from the rays than are those of the male, but, aside from this, both sexes are affected.

The Public Service

U. S. Public Health and Marine-Hospital Service

Changes for the 7 days ended Aug. 10, 1910:

- Guiteras, C. M., surgeon, granted 4 days leave of absence from Aug. 9, 1910.
Stimpson, W. G., surgeon, granted 20 days leave of absence from Aug. 11, 1910.
Blue, Rupert, surgeon, granted 8 days leave of absence from Aug. 7, 1910.
Moore, Dunlop, passed asst.-surgeon, granted 14 days leave of absence from Aug. 10, 1910.
Fox, Carroll, passed asst.-surgeon, relieved from duty in the Hygienic Laboratory and directed to proceed to Manila, P. I., and report to the Chief Quarantine Officer for duty, Aug. 5, 1910.
Vogel, C. W., passed asst.-surgeon, granted 15 days leave of absence from Aug. 10, 1910.
Glover, N. W., passed asst.-surgeon, leave of absence for 10 days from July 25, 1910, amended to read 3 days from July 25, 1910.
Bahrenburg, L. P. H., passed asst.-surgeon, granted 6 days leave of absence from July 26, 1910, on account of sickness.
Cleaves, F. H., acting asst.-surgeon, granted 6 days leave of absence from Aug. 1, 1910.
Deerhake, Wm. A., acting asst.-surgeon, granted 5 days leave of absence in July, 1910, under paragraph 210, Service Regulations.
Elfers, J. G., acting asst.-surgeon, granted 30 days leave of absence from Aug. 8, 1910.
Hart, George C., acting asst.-surgeon, granted 12 days' leave of absence from Aug. 18, 1910.
Hornings, Henry, acting asst.-surgeon, granted 7 days' leave of absence from Aug. 3, 1910, under paragraph 210, Service Regulations.
McLarty, A. A., acting asst.-surgeon, granted 10 days' leave of absence from Aug. 1, 1910.
Onuf, B., acting asst.-surgeon, granted 8 days' leave of absence from Aug. 16, 1910.
Richter, H. C., acting asst.-surgeon, granted 30 days leave of absence from Aug. 1, 1910.
Rush, John O., acting asst.-surgeon, granted 14 days' leave of absence from Aug. 10, 1910, with pay, and 4 weeks' leave of absence from Aug. 24, 1910, without pay.
Savage, Walter L., acting asst.-surgeon, granted 30 days' leave of absence from Aug. 12, 1910.
Schwartz, Louis, acting asst.-surgeon, granted 7 days' leave of absence from Aug. 8, 1910, under paragraph 210, Service Regulations.
Stevenson, J. W., acting asst.-surgeon, leave of absence for 30 days from Aug. 3, 1910, amended to read 30 days from Aug. 8, 1910.

Stewart, W. J. S., acting asst.-surgeon, granted 1 month's leave of absence without pay from July 23, 1910.

Townsend, W., acting asst.-surgeon, granted 8 days' leave of absence from July 28, 1910.

Wallace, C. R., acting asst.-surgeon, granted 14 days leave of absence from Aug. 22, 1910.

Medical Department, U. S. Army

Changes for the week ended Aug. 13, 1910.

Boyer, Perry L., capt., relieved from temporary duty at Fort Mason, Cal., and as attending surgeon, San Francisco, and on expiration of present sick leave of absence will proceed to Fort Clark, Tex., for duty.

Collins, C. C., major, on expiration of present leave of absence will proceed to Fort Robinson, Neb., for duty.

Church, James R., major, relieved from duty at Fort Robinson, Neb., and ordered to Fort Ontario, N. Y., for duty.

Gray, William W., col., ordered to proceed to Omaha, Neb., and report Sept. 1, 1910, for temporary duty as Chief Surgeon, Department of the Missouri.

Brechemin, Louis, col., relieved from duty in the Philippines Division, and will proceed on the transport to sail from Manila, P. I., Jan. 15, 1911, to San Francisco. Colonel Brechemin will proceed thence to Omaha, Neb., for duty as Chief Surgeon, Department of the Missouri, relieving Colonel William W. Gray, Medical Corps, who will return to his proper station.

Brownlee, Charles Y., major, on expiration of leave of absence will proceed to Fort Des Moines, Iowa, for duty at that post.

Vose, William E., major, relieved from duty at Fort Des Moines, Iowa, and ordered to Jackson Barracks, La., for duty at that post.

Usher, F. M. C., major, relieved from duty at Jackson Barracks, Mo., and ordered to Fort Sam Houston, Tex., for duty at that post.

Metcalfe, R. F., capt., on expiration of leave of absence will proceed to the Army General Hospital, San Francisco, Cal., for duty.

Vedder, Edward B., capt., detailed as a member of board for the purpose of studying tropical diseases as they exist in the Philippine Islands, vice Captain E. D. Kilbourne, Medical Corps, to take effect on departure of Captain Kilbourne from the Philippine Islands.

Casaday, George H., dental surgeon, relieved from duty at Presidio of Monterey, Cal., and will proceed from San Francisco, Sept. 5, 1910, to the Philippine Islands, for duty.

Graham, George D., dental surgeon, relieved from duty at Fort Leavenworth, Kan., and will proceed from San Francisco, Cal., Sept. 5, 1910, to Fort Shafter, H. Ty., for duty. Dental Surgeon Graham will stand relieved from Fort Shafter about December 15, and will then proceed to the Philippine Islands for duty.

Baker, Frank C., major; O'Connor, R. P., major, and Davis, William R., capt., August 4, will proceed at the proper time to the Camp of Instruction at Ft. Benj. Harrison, Ind., for duty, and on the completion thereof will return to their proper stations.

Smart, William, capt., August 4, granted 2 months' leave of absence about Sept. 7, 1910.

de Krafft, S. Chase, M.R.C., August 4, relieved from duty (active) in that Corps, to take effect Aug. 14, 1910.

Springwater, Samuel A., M.R.C., August 4, granted leave of absence to and including Sept. 4, 1910. First Lieutenant Springwater is honorably discharged from the service of the United States, to take effect Sept. 4, 1910, his services being no longer required.

Kremers, E. D., lieut., August 2, ordered to proceed from Presidio of San Francisco to Ft. Miley, Cal., for temporary duty.

Casper, Lieut. (Joseph), August 1, left Ft. Du Pont, Del., en route to Pine Camp, N. Y., for duty.

Lynch, Edward C., M.R.C.; Ferenbaugh, Thomas L., lieut.; Hughes, Leonard S., M.R.C., August 4, report for duty at Camp E. S. Otis, Wyoming.

Craig, Charles F., capt., August 5, directed to proceed to New York City and to New Haven, Conn., on official business pertaining to the Medical Department.

Hess, Louis T., Waterhouse, S. H., Geddings, Edward F., majors, August 4, assigned to duty as Inspector-Instructors at state encampment at Gettysburg, Pa., from Aug. 11 to 20, 1910.

Gibson, Paul W., M.R.C., July 30, left Ft. Yellowstone, Wyo., on practice march with Troop F, Fifth Cavalry.

Bundesen, H. N., M.R.C., August 4, left Ft. D. A. Russell, Wyo., en route to Camp E. S. Otis, Wyo.

Connor, C. H., major; Owen, Leartus J., capt.; Beery, Harry R., lieut., July 28, designated for duty at the Camp of Instruction, Fort Benjamin Harrison, Ind.

Vose, William E., major, Aug. 5, 1910, orders to duty; Camp of Instruction, Ft. Riley, Kan., revoked.

Smith, Allen M., major, August 1, in addition to his other duties, will assume charge of the office of the Chief Surgeon, Department of Texas.

Harris, H. J., M.R.C., August 9, reported for temporary duty at Pine Camp, N. Y.

Fauntleroy, P. C., major, August 4, detailed for duty as Inspector-Instructor, organized Militia of Illinois, encampment at Peoria, Ill., Aug. 20-27, 1910.

Hall, James F., capt., Aug. 5, 1910, ordered to make the physical examinations of captains and lieutenants on duty at Rock Island Arsenal, Ill.

Graham, George D., D.S., August 8, granted 10 days' leave of absence, Aug. 20, 1910.

Ingalls, R. E., dental surgeon, August 2, on completion of duty at Ft. Wingate, N. M., will proceed to Ft. Apache and Huchuca, Ariz., thence to Whipple Barracks, Ariz., for duty.

Hallett, H. J., M.R.C., August 9, reported at Fort Hamilton, N. Y., for temporary duty.

Register, E. C., M.R.C., August 11, reported for temporary duty at Ft. Michie, N. Y.

Maguire, David F., M.R.C., August 10, left Ft. Myer, Va., en route to Ft. McHenry, Md., for temporary duty, and reported at Ft. McHenry, Md., Aug. 11, 1910.

Robbins, Chandler P., major, August 8, left Ft. McHenry, Md., en route to Ft. Monroe, Va., for temporary duty.

Clayton, J. B., major, August 10, granted leave of absence for one month and fifteen days, about Oct. 1, 1910.

State Boards of Registration

North Dakota July Report

Dr. H. M. Wheeler, secretary of the North Dakota State Board of Medical Examiners, reports the written examination held at Grand Forks, July 5-7, 1910. The number of subjects examined in was 14; percentage required to pass, 75. The total number of candidates examined was 16, of whom 13 passed and 3 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern Univ. Med. School (1903)	80	(1910)	82, 86, 91
College of Physicians and Surgeons, Chicago	(1910)		89
Harvard Medical School	(1903)		88
Univ. of Mich., Dept. of Med. and Surg.	(1903)		90
Hamline University	(1909)		76, 83, 85
Jefferson Medical College	(1910)		82
Marquette University, Milwaukee	(1910)		78
University of Toronto, Ontario	(1908)		82

College	FAILED	Year
Chicago Physiomedical College	(1906)	*
Indiana University	(1909)	*
Queen's University, Kingston, Ontario	(1905)	*

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Illinois Medical College	(1907)		Wisconsin
College of Phys. and Surg., Chicago (1905)	(1908)		Illinois
Northwestern University Medical School	(1908)		Illinois
Jenner Medical College	(1906)		Illinois
Detroit College of Medicine	(1896)		Wisconsin
University of Minnesota, College of Medicine, (1903)	(1905)		Minnesota
University of Michigan, Dept. of Med. and Surg.	(1907)		Michigan
Barnes Medical College	(1906)		Illinois
McGill University, Canada	(1906)		Minnesota

The following questions were asked:

ANATOMY

1. Describe the hip joint, naming ligaments.
2. Give a description of the femoral artery and its relations.
3. Describe circulation of blood through the heart.
4. Describe the scapula.
5. Describe the axilla and what does it contain?

PHYSIOLOGY

1. Give the physiology of the kidneys.
2. Describe the process of digestion of fats.
3. What is the function of bile?
4. How is the waste material of the body thrown off?
5. Describe the function of the eye.

HISTOLOGY

1. Describe karyokinesis.
2. Describe the different cells found in the blood.
3. Describe a cross-section of the stomach at pyloric end.
4. Describe a cross-section of the middle of a long bone.
5. Give the histology of the kidney.

PATHOLOGY

- Answer any five questions: 1. Describe atrophy and degeneration as separate pathologic conditions. 2. Describe a thrombus, embolus, an infarct. 3. Differentiate between a lipoma and malignant tumor. 4. Define inflammation. 5. Describe the pathologic changes in lung tissue resulting from tubercular infection. 6. Differentiate between sapremia and septicemia. 7. What are the postmortem appearances in typhoid fever? 8. Give the pathology of leukemia. 9. What pathologic conditions produce necrosis? 10. Describe the process of fatty degeneration.

OBSTETRICS

1. Describe the pelvic straits.
2. Give indications and technic of a high delivery.
3. Diagnose and treat a case of placenta previa.
4. What is your idea regarding causes of puerperal sepsis?
5. What would lead you to suspect some retained placenta in an old case (two weeks after delivery)? Give your treatment.

EYE AND EAR

1. Give prophylaxis and treatment of ophthalmia neonatorum.
2. Give prognosis and treatment of a cornea in which is imbedded a hot cinder.
3. Define (a) astigmatism, (b) blepharitis.
4. Define and give etiology of glaucoma.
5. Symptoms and treatment of chronic nonsuppurative median otitis.
6. Give indications for mastoid operation.
7. Give anatomic divisions of the ear and contents of each.
8. What is the best method of removal of a foreign body—as a pea—from the ear?

CHEMISTRY AND TOXICOLOGY

1. Define the followings terms as applied to chemistry: Reagent, reaction, insolubility, volatility, valency, atomicity.
2. Describe a method of detecting free HCl in stomach contents.
3. Describe a quantitative test for urea.
4. Give the Esbach method for quantitative test for albumen in urine.
5. Give the composition and physical properties of good drinking water.
6. Symptoms and treatment of poisoning by carbolic acid, corrosive mercury, opium, strychnin and arsenic.

PRACTICE

- Answer any five questions: 1. Give etiology, symptoms and treatment of auto-intoxication. 2. Give diagnosis of cerebral hemorrhage. 3. Differentiate between typhoid fever and malaria. 4. What are the symptoms of intestinal perforation in typhoid fever? 5. Give symptoms and treatment of measles. 6. Definition, symptoms and treatment of chlorosis. 7. Differential diagnosis between mitral stenosis and regurgitation. 8. Write a prescription and give diet list for chronic constipation. 9. Etiology and treatment of hay fever. 10. Differentiate between gastritis, carcinoma and ulcer of stomach.

PREVENTIVE MEDICINE

1. By what method can we prevent the occurrence of diseases?
2. How prevent pitting in small-pox? Ring worm from spreading?
3. In eruptive fevers, as small-pox, scarlet fever and measles how guard against or prevent?
4. Prevention of scurvy.
5. What preventive measures can we take to check the spread of venereal diseases?
6. Give the means of propagation and the preventive measures in typhoid fever.
7. Can ophthalmia neonatorum be avoided and what would be your method of prevention?
8. What preventive measures can you suggest for cerebrospinal meningitis?
9. Who appoints the health officers, state, county and city, and what qualifications are required?
10. Diarrhea and dysentery, how caused and can they be prevented?

MATERIA MEDICA

1. What is an acid? Composition of Dover's powder.
2. What are agents employed as cathartics.
3. What are agents employed in the treatment of disease called?
4. Through what medium is the influence of medicine exerted on remote parts of the body?
5. How does the time of administering medicines modify their action?
6. Name three effective emetics.
7. What drugs cause eruptions of the skin?
8. What are the medicinal uses of alcohol and what effect have they on diseased conditions? Do you employ them, if so why?
9. What are the uses of narcotics? Name the principal ones.
10. Give the maximum dose for an adult, of strychnine, sulphur, atropia, chloral, morphine, pilocarpin.

MEDICAL JURISPRUDENCE

1. (a) What are the duties of the State Board of Medical Examiners of the State of North Dakota? (b) What does the statute of this state command that the recipient of a license from this board to practice medicine and surgery in this state shall do with it? (c) What is the penalty, if any, for practicing medicine in the state without first obtaining license from this board? 2. (a) What is medical expert testimony? (b) On what is it generally based? (c) Who is competent to give it? (d) Should a physician and surgeon hesitate to give expert testimony, in a worthy cause and after careful preparation on the issue involved? 3. A young woman, pregnant two months, in company with her parents, the man responsible for her condition, and the states attorney of the county in which they all live, called on a physician in this state and requested him to abort her. All agreed that from a social standpoint it was for the best interests of all concerned that the physician comply with the request, and each and all further premised in writing that no matter what the consequences might be, the physician should be excused from civil and criminal liability. The physician complied with the request. She rapidly recovered and all interested were pleased. The physician received \$500. Was he guilty of a crime under the laws of this state? If so what is the punishment? If you answer in the affirmative give your reasons. 4. A regularly licensed physician and surgeon is called by a farmer 15 miles from the physician's office and in the country, at 2 o'clock in the morning. At the time there was a heavy downfall of cold rain. The roads were bad, but not impassable. The physician is supplied with a rig suitable and convenient with which to make the trip. The farmer tells him his wife has suffered an injury by accidentally falling from a mowing machine in front of the knife, and that a limb was severed at the knee; that the wound was bleeding profusely and it seemed impossible to stop it. The farmer was a tenant and without any means whatever, and unable to pay the doctor then or in the immediate future, which fact the doctor well knew. There was no other physician within 50 miles of the farmer's home. The doctor refused to respond to the call and go to the relief of the suffering woman, solely on the farmer's inability to pay him for his services and because it was raining. The farmer was unable to get into communication with any other physician and the woman survived 20 hours, when she died of hemorrhage and blood poison. A post mortem was held and 5 competent and creditable physicians declared that if the woman had had medical attendance within nine hours after the accident she would have survived. Was the doctor guilty of any crime under the law of this state? If so what was it, and what is its punishment? Would a civil action lie against him for damages on behalf of the surviving husband? 5. (a) What is malpractice? (b) What degree of skill does the law require a physician and surgeon to exercise in the practice of his profession? (c) What is the statutory limitation of the prosecution of an action against a physician and surgeon for damages account malpractice in this state?

DISEASES OF WOMEN AND CHILDREN

1. Symptoms, subjective and objective retroversion uteri, treatment of same.
2. Pelvic hematocoele, symptoms, causes and treatment.
3. Symptoms, subjective and objective of laceration of cervix uteri of long standing.
4. Symptoms and complications of gonorrhea in female.
5. Dysuria in female, causes and treatment.
6. Symptoms and treatment capillary bronchitis.
7. Causes and treatment enuresis.
8. How feed an infant of three months deprived of mother's milk?
9. Treatment of enterocolitis.
10. Treatment of pertussis.

NERVOUS DISEASES

1. Differential diagnosis of cerebral hemorrhage and tumor.
2. What is myxedema? Give symptoms and treatment.
3. Define migraine. Give causes, symptoms and treatment.
4. How would you treat a case of delirium tremens?
5. Symptoms, prognosis and treatment chorea.
6. Infantile paralysis; (a) What part of cord is involved? (b) Give symptoms and treatment in full from the onset.

SURGERY

1. How would you diagnose a subcoracoid dislocation? Name method employed in its reduction, with the different steps in the operation.
2. Give your treatment in detail for fracture of humerus just above the condyles.
3. Give your method of treatment for a nail wound of foot.
4. Differential diagnosis of intracapsular fracture and dorsal dislocation of head of femur and give your treatment for this fracture in a woman 70 years of age.
5. How would you diagnose a case of complete inguinal hernia from a hydrocele, and describe the radical cure for hydrocele.
6. Describe in full Bassini's method of operation for the radical cure of hernia.

Rhode Island July Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, July 7-8, 1910. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 10, of whom 6 passed, 3 failed and one withdrew. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Baltimore		(1909)	81.1
Tufts College Medical School		(1910)	84
Boston University		(1899)	80.3
Columbia Univ., College of Phys. and Surg.		(1878)	80
Jefferson Medical College		(1908)	83.3
University of Vermont		(1910)	82.9
	FAILED		
Baltimore Medical College		(1909)	77.5
University of Maryland		(1910)	69.9
Laval University, Canada		(1905)	72.5

Medical Economics

Insurance and Industrial Cooperation for the Promotion of Public Health

The importance of systematic and widespread efforts for the improvement of public health are evidently appreciated by the insurance interests—both the old-line and the fraternal organizations. A number of the leading old-line companies have inaugurated campaigns among their policy-holders with this object in view. In a recent number of the *Metropolitan*, an insurance publication, appear articles on flies, the refrigerator, etc., as well as a reproduction of the now celebrated poster originated by the Florida Board of Health showing, with graphic but wholesome unpleasantness, the manner of life of the ordinary house fly.

An insurance company sent to its policy-holders a pamphlet on "Living and Sleeping in the Open Air," prepared by Dr. Thomas S. Carrington, assistant secretary of the National Association for the Study and Prevention of Tuberculosis. This pamphlet contains plans and photographs for sleeping porches and shelters adequate for use on roofs and in back yards. The details will make it easier for many persons to secure places for out-door sleeping.

Another company has issued a number of bulletins prepared by the Policy Holders' Health Bureau, established to assist in guarding the health and lives of the policyholders. One bulletin deals largely with the influence of alcohol on the death rate and the dangers of the use of alcohol as a beverage. Obesity, the hookworm disease, sanitary neglect in rural districts and hygienic hints for winter and early spring are also considered. Another is devoted largely to the dangers of "patent medicine" and the folly of self-drugging. Narcotic drug habits, hygiene of the mouth, malaria, yellow fever and health hints for hot weather are also considered.

The *Western Review*, a monthly journal devoted to the interests of fraternal benevolent societies, has established a "Department of Public Health," under the supervision of the medical director of one of the societies and has made this department a feature in several of its recent numbers.

A shoe company has issued a vest-pocket book "for the welfare of its employees," which praises the Safe and Sane Fourth idea, gives the text of the Massachusetts law on the subject, and supplies terse directions for treating Fourth of July accidents. For good measure instructions on the prevention of tuberculosis are added, and attention is called to the privilege of examination by the company's physician and of being cared for in a free bed which the company maintains at a certain hospital.

The increased attention paid to public health matters by business interests is of especial significance as it is an evidence of general recognition of the wastefulness of preventable sickness and disease and the economic value of good health.

Book Notices

DIE EXPERIMENTELLE PHARMAKOLOGIE ALS GRUNDLAGE DER ARZNEIHANDLUNG. Ein Lehrbuch für Studierende und Aerzte. Von Dr. Hans H. Meyer und Dr. Gottlieb, Professoren der Pharmakologie. Paper. Price, 12 marks. Pp. 483, with 62 illustrations. Berlin: Urban & Schwarzenberg, 1910.

This collection of the data of experimental pharmacology from the standpoint of medical practice forms a noteworthy contribution to pharmacology and treatment. While pharmacology from the point of view of pure science is to be regarded as a section of biology, from the medical point of view it is an applied science and finds its justification as a vital part in the equipment of the modern physician only when it considers the action of drugs in relation to the disease processes. Such a consideration necessitates an adequate fundamental conception of the normal physiologic processes and the manner in which they may be influenced by drugs, an understanding of the alterations in the normal which constitute the pathologic, and wise judgment in correlating drug-action with these altered processes. The task of correlating the data of pharmacology and pathology with the view of providing a rational basis of drug therapy is one of extreme difficulty.

In this work the authors adopt a classification of drug actions into two groups, organotropic, i. e., action influencing function, and etiotropic, i. e., action on causes of disease. As illustrating the present development of the science it is interesting to note that the greater part of the book is devoted to drugs possessing organotropic action. The consideration of these is subdivided, according to the function chiefly affected, into sixteen chapters. These include the pharmacology of motor nerve-ends, of the central nervous system, of sensory nerve-endings; of the vegetative (involuntary nervous) system, of the eye, of digestion, of uterine movement, of the circulation, of respiration, of renal function, of sweat secretion; of metabolism, of muscles, of the blood, of the heat-economy and of inflammatory processes. The consideration of etiotropic drugs is included in one chapter, which takes up the general antiseptics, specific antiseptics and concludes with a brief outline of serum therapy.

This method results in the concentration of the attention on the physiologic process under discussion. Nearly every chapter begins with a concise exposition of the physiology involved. The action of the drugs which affect the function is described and explained, and finally the alterations of the process in disease and the connection of the drug-action with this are indicated. The physiologic considerations are concise, illuminating and decisive; more dogmatic than would be allowable in a treatise on pure physiology. It is worthy of note that in many instances the reaction of an organ to drugs throws important light on the mechanism of its function, and in this respect the authors have contributed materially to physiology by pointing out such cases.

A short general chapter on the relation of drug-action to the vegetative nervous system is of great service in understanding the action of drugs on the particular organs controlled by it. The action of drugs on metabolism is presented only in outline, but the state of development of that field of pharmacology is such that its consideration is of necessity schematic; but there is left in the mind of the reader a clear, general conception of the effects produced by such drugs as iodids, phosphorus, arsenic, etc., which heretofore have so often been relegated to the mysterious realm of "alteratives." The discussion of circulatory conditions in which drugs may be indicated, and their rational application, is carried out under three broad headings—cardiac insufficiency, cardiac and vasomotor paralysis, and vascular spasm. One could wish that the authors had considered more specifically the nature of pathologic processes. It is evident that they regarded only broad discussions in this relation as within the scope of the book.

One might wish for a fuller explanation of the effects of such drugs as atropin, cocaine and bromids on the central nervous system. Differences of opinion will arise as to some of the conclusions drawn; e. g., as to the identity of action of nicotin and pilocarpin on the heart, the action of morphin on sensory nerve-ends, the action of calomel in causing diu-

resis, etc., but one feels that the explanations advanced require serious consideration. It is disappointing to find American work so scantily represented, and it is difficult to believe that this is the result solely of lack of worthy research by American investigators. The discovery of anesthesia by subdural cocain injection is ascribed to Bier; no mention is made of the astonishing results on resuscitation obtained by Crile; of Sollmann's work on the kidney; of Embley's (English) work on the effects of chloroform on the inhibitory cardiac center, etc. On the whole, however, the references to the literature are a valuable and satisfactory feature of the work. The data regarding drugs, being grouped about the consideration of function, have received the logical arrangement, but at the inevitable cost of a scattering of information regarding any particular drug. To cite a single instance, the action of morphin is separately considered in eight different chapters. The toxicology of various drugs, and the preparations in which drugs are available, are given subordinate and sometimes anomalous place in this scheme. This does not affect the value of the book in its broadest application; but does limit its usefulness as an instrument of teaching in this country, at least. The student would find difficulty in getting from it a broad, consecutive understanding of all pharmacology, but the study of the book after a preliminary training in this subject according to our present methods, would make such training vital in the study of the treatment of disease.

MEDICAL ELECTRICITY AND RÖENTGEN RAYS. With Chapters on Phototherapy and Radium. By Sinclair Tousey, M.D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Cloth. Price, \$7 net. Pp. 1116, with 750 illustrations. Philadelphia: W. B. Saunders Co., 1910.

In this work the author has undertaken to cover completely the subjects of the therapeutic and diagnostic uses of electricity, and Roentgen rays; not content with this he goes even beyond his title, and considers also the uses of radiant heat and radium. The work is an enormous mass of detail. The physics of electricity, as bearing on the medical uses of the agent, first comes in for extended consideration—over 250 pages. With this there is a very full description of apparatus. Then are given—not enumerating all topics—physiologic effects of electricity, electropathology, electrodiagnosis, ionic medication by electrolysis, physiologic and therapeutic effects of electromagnets, electricity in diseases of the nervous system, and high-frequency currents; to each of these is given a chapter or more. Phototherapy, x -rays with all of their apparatus and uses, and finally radium are then considered. One can hardly look in the vast fields for a topic which the author has not considered, but the inexperienced reader will find more difficulty in getting systematic instruction from the work than he will in getting isolated facts. Everything is given, without a sense of perspective as to the relative value of different parts, and the parts of the work are of very unequal merit. The consideration of apparatus, of electricity and x -rays in diagnosis are good; the therapeutic parts are much less satisfactory and are not, in our belief, a conservative guide.

THE DISEASES OF THE NOSE, MOUTH, PHARYNX AND LARYNX. A Text-Book for Students and Practitioners of Medicine. By Dr. Alfred Bruck (Berlin). Edited and Translated by F. W. Forbes Ross, M.D., Late Civil Surgeon, His Britannic Majesty's Guards Hospital, London. Assisted by Friedrich Gans, M.D. Cloth. Price, \$5. Pp. 615, with 217 illustrations. New York: Rebman Company [1910].

This book has been written to meet the needs of the general practitioner. Each of the four subjects is divided into a general and a special section, the former dealing with the anatomy, physiology, methods of examinations and general therapy, the latter dealing with the diseases pertaining to the subjects under discussion. The anatomic descriptions cover the essential points and are accompanied by good illustrations. The methods of examination are discussed in a way that will appeal to the general practitioner, who has not had special training in these fields. In dealing with the treatment of the different diseases, special emphasis has been laid on procedures that may be used by those who have not had the opportunity to become schooled in the technic of the more difficult operations. The arrangement of the material of this work is systematic, and the discussions are clear and concise, meeting admirably the needs of men in general practice.

Medicolegal

Giving Medical Treatment for Eyes, Practice of Medicine—Admissibility of Evidence—Advertising—Claiming to Be an "Ophthalmologist" No. Defense

The Kansas City Court of Appeals says that the evidence in the case of *State vs. Blumenthal* (125 S. W. R., 1188), tended to show that the defendant had an office in a hotel, and that on his door was the sign, "Dr. H. M. Blumenthal;" that a woman went to his office and engaged him to treat her eyes, he telling her that she had a cataract, astigmatism, and other ailments of the eyes, which he treated by prescribing ointments or salves and eyewashes, for which he charged her \$10; that he likewise furnished and fitted eyeglasses, for which he charged \$15. The eye medicine was sent to her by her brother at one time and delivered personally by the defendant at several other times. In view of such evidence, there can be no doubt that the defendant was practicing medicine within the meaning of the law.

It was decided by the Supreme Court of Illinois (*People vs. Smith*, 208 Ill., 31) that a traveling optician who invited persons, by advertisements, who were afflicted with dizziness, neuralgia, etc., to visit him and obtain relief by purchasing spectacles, and disclaimed medical or surgical treatment, was not treating, operating, or prescribing for physical ailments under the statute of that state. That was no more than to say that one who merely sold and fitted eyeglasses was not practicing medicine, and the trial court gave such declaration of law in this case. But the facts which the evidence tended to prove against the defendant in this case were that he not only sold and fitted spectacles, but gave medical treatment for the eyes.

Objection was made to the admission of the evidence showing the sign at the defendant's room door at the hotel, as set out above, but the ruling was proper. It tended, connected with the other evidence, to support the charge made.

The trial court likewise properly admitted evidence of the defendant advertising as a practitioner of medicine. It is true that the Missouri statute constitutes the act of advertising as a physician as an offense within itself, yet that fact does not exclude the fact as probative of the offense of practicing. The fact that evidence having a tendency to prove the offense charged may also tend to prove some other offense not charged does not necessarily render it incompetent.

There was some claim made by the defendant that he was an ophthalmologist. If that be accepted as true, it would not serve him any purpose since that is a branch of medical science, and its practice would fall within the terms of the statute. That term seems to signify some disease or diseases of the eye, and the court can see no reason why one who prescribes medicines for such diseases would not be as guilty as by any other name. It is the act committed, and not its designation, which constitutes the offense.

The court was not impressed with the defendant's argument as to lack of proof as to his practicing. His sign, office, advertisement, treatment for a considerable period of the prosecuting witness was ample evidence.

Examination of Body for Defendant in Homicide Case Does Not Create Relation of Physician and Patient, or Privilege

The Supreme Court of Nebraska says, in *Ossenkop vs. State* (126 N. W. R., 72), a homicide case, that, after the homicide, the defendant employed a physician to examine the body of the deceased person and to report the result. Later the same physician was selected by the state to make a post mortem examination. He performed the service and testified at the trial to the conditions disclosed. The defendant contended that knowledge of all of the facts to which the physician testified was obtained as a result of confidential communications properly intrusted to him by the defendant. The point was that the physician's testimony was admitted in evidence in violation of the provision of the statute that no practicing

attorney, physician, surgeon, minister, etc., "shall be allowed, in giving testimony, to disclose any confidential communication, properly intrusted to him in his professional capacity, and necessary and proper to enable him to discharge the functions of his office according to the usual course of practice or discipline." As applied to physicians, the purpose of the statute is to prevent the improper disclosure of secrets or facts learned by means of the confidential relation. The relation protected is that of physician and patient. Outside of that relation the parties are on an equal footing, where the rule of the statute and the reasons of public policy on which it is founded do not follow. In this case the physician was not employed to examine or treat the defendant or any member of his family. The relation of physician and patient did not exist between them. The exhumed body contained no secrets which could be kept within the exclusive knowledge of the defendant and the physician. The means of ascertaining the condition of the body was equally within the reach of the defendant and the state. The court was entitled to know the truth. The purpose of the statute is to protect patients from objectionable disclosures; but it was never intended to shield the defendant in his position. Consequently the ruling of the trial court in admitting the physician's testimony must be approved.

Aider in Abortion Punishable as Principal

The Supreme Court of New Jersey says that it was contended in *State vs. Wilson* (75 Atl. R., 776) that the history of the statute of that state passed in 1872, and now in force, was such as to compel the conclusion that the legislature intended to legitimize the procuring of abortions, or at least to grant immunity to all who knowingly aided or assisted in the commission of such offense. This rather startling proposition was based on the circumstance that the original act of March 1, 1849, contains the words, "and every person with the like intent knowingly aiding and assisting such offender or offenders," which were omitted from the act of 1872. But the court suggests that the legislature may have concluded in 1872 to retain the principal offense only with its legal incidents as to who were to be held as principals in the commission of such misdemeanor. As between this intelligent and officious purpose on the part of the legislature and the imputation to it of an express intention, if not to legitimize, at least to condone one of the gravest offenses against society, the court, as a co-ordinate branch of the government, ought not for a moment to be skeptical. So it is held that if A directs a woman in an early stage of pregnancy—i. e., before the child is quick—to go to B to have a miscarriage produced, which is accomplished by B by the use of instruments, A may be indicted as a principal offender under the New Jersey statute, and, on proof of a concert of action between him and B, may be convicted under the rule that all concerned in a misdemeanor are equally guilty.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

August 6

- 1 *Hysteria under Psychoanalysis. G. M. Parker, New York.
- 2 *External Urethrotomy without a Guide. C. L. Gibson, New York.
- 3 *Vaccines in Treatment of Bacterial Infections in Infants and Young Children. E. M. Sill, New York.
- 4 *A Theory as to the Origin of Leprosy. J. Atcherley, San Francisco.
- 5 The Genesis of Hysterical States in Childhood, and Their Relation to Fears and Obsessions. T. A. Williams, Washington, D. C.
- 6 *An Unusual Case of Congenital Absence of Anus and Lower End of Rectum. J. Wiener, New York.

1. Hysteria Under Psychoanalysis.—Parker gives a summary of the interpretation of hysteria by the psychology of Janet.

2. External Urethrotomy Without a Guide.—In Gibson's operation an exaggerated lithotomy position is maintained under general anesthesia. The index finger of the left hand passed into the rectum acts as a guide to the membranous urethra. An incision is made in the middle line, the knife being held perpendicularly through the tissues until it enters the well-dilated membranous urethra. A suitable probe is passed along the knife, which is still held perpendicular, the finger having been removed from the rectum. Along this probe or director the stricture is divided. A small urethrotome or bougie is passed toward and through the anterior urethra, and a filiform bougie is entered. The knife is fitted into the staff and pushed home through the stricture, after which an Otis urethrotome is passed and the operation completed by cutting the stricture through. Bladder drainage is instituted.

3. Vaccines in Treatment of Various Bacterial Infections.—Sill treated 49 children with local suppurations with vaccines made from the dead bacteria removed from the patients under treatment. Of these 49 children, all under 5 years of age, 30 were cases of subacute or chronic otitis media. Of these 28 children were cured, 10 improved, and one not improved. The earlier in the discharge the vaccines were used the better were the results. Pneumonia and erysipelas were cured by vaccines. The vaccines were given in doses of from 2 to 8 million bacteria. Other treatment was abstained from.

4. Origin of Leprosy.—According to Atcherley, leprosy is a chronic, diathetic disease, with gradual onset and irregular course, characterized by an inflammatory fibroid degeneration of the nerve tissue generally, which precedes the deposit of the lepra bacillus. This nerve degeneration is the result of defective food pabulum supplied by the blood, from the ingestion of improper food. This theory is based on the fact that the pathologic changes in leprosy bear a striking analogy to those of scurvy.

6. Congenital Absence of Anus and Rectum.—Wiener reports the case of a new-born infant, in whom there was absence of anus and lower part of rectum; an immediate operation, by incision of the perineum, with pushing down of the closed pouch of rectum, and suture, saved the life of the infant.

New York Medical Journal

August 6

- 7 Medical Allusions in Hudibras and Butler's Remains. F. H. Garrison, Washington, D. C.
- 8 *Study of the Leukocytes in Pulmonary Tuberculosis. M. Solis-Cohen and A. Strickler, Philadelphia.
- 9 Extrauterine Pregnancy from the Standpoint of Clinical Experience. J. M. Keyes, New York.
- 10 Laryngeal Syphilis. H. Smith, New York.
- 11 *Concomitant Epigastric Hernia and Gastric Ulcer. H. W. Soper, St. Louis.
- 12 Lane's Conception of Chronic Constipation and its Management. A. B. Cooke, Nashville, Tenn.
- 13 Medical Theory and Practice of the Natives of the Heart of Africa. J. Knott, Dublin, Ireland.
- 14 The Sound Block. E. T. Senseney, St. Louis.

8. Leukocytes in Pulmonary Tuberculosis.—The authors undertook this study (1) to determine whether the leukocytes in cases of pulmonary tuberculosis in a sanatorium a little above sea level present a constant picture in the various stages of the disease, and in accordance with the improvement or retrogression of the patient; (2) to see what are the average proportions of the different white blood cells in phthisis. They found:

1. The percentage of polymorphonuclear neutrophils was diminished in incipient and moderately advanced cases, being less in the former. It was also diminished in patients who were improving.
2. The percentages of the different forms of polymorphonuclear neutrophils, classified according to the number of nuclei they contained, bore no constant relation to any stage or to the progress of the disease.
3. The percentage of lymphocytes was increased in incipient and moderately advanced cases and in improving patients.
4. The percentage of large mononuclear and transitional cells, grouped together, while within normal limits, was greatest in incipient and in improving cases.
5. The percentage of eosinophils was greatest, though normal, in incipient cases.
6. In moderately advanced cases were found the lowest percentage of large mononuclear and transitional cells, grouped together, and of eosinophils, and the highest percentage of large mononuclear cells.
7. In patients whose condition was stationary occurred the highest percentage of polymorphonuclear neutrophils and the lowest per-

centage of lymphocytes, of large mononuclear cells, and of large mononuclear and transitional cells grouped together.

8. Whenever one extreme was exhibited by moderately advanced cases or by stationary cases the other extreme was furnished respectively by incipient cases or by improving patients. Par-advanced and retrograding cases respectively held a middle position, which approached the condition found in incipient and in improving cases respectively, rather than the other extreme.

9. In addition to the mononuclear basophilic cells, the blood occasionally contains polynuclear basophilic cells, easily distinguishable from other leukocytes.

11. **Concomitant Epigastric Hernia and Gastric Ulcer.**—Fourteen years ago Soper's patient was operated on for hemorrhoids and fistula. Stomach trouble developed soon after. Symptoms were distress and burning sensation accompanied by eructations of gas and acid-tasting liquids, attacks lasting from a few minutes to several hours, and were usually relieved by taking food. Occasional vomiting occurred of very acid mucus and food particles. Patient often had attacks in the early part of the night. These symptoms with remissions and exacerbations persisted. During the past year more severe attacks of pain and vomiting frequently occurred. The abdomen presented very large fat deposit. There was tenderness over the celiac axis and in the median line just below the ensiform cartilage. Gastric ulcer was diagnosed. The pains were absent while a bland diet was followed, always recurring when coarse vegetables or meats were eaten. Operation was advised but refused.

On Nov. 13, 1909, she was seized with a severe attack following a meal of pork and sauerkraut. The epigastrium was very tender to pressure, the hernia extremely so. Despite strict ulcer cure régime the pains and vomiting persisted. On November 26 she was operated on. The hernia consisted of a thin band of the lesser omentum containing a mass of fat about the size of an almond. The stomach was explored and a slightly indurated ulcer of about the size of a silver half dollar was found in the middle of the lesser curvature in the anterior wall. The incision was closed. The patient was kept in bed for four weeks under strict bland diet. Recovery was interrupted by an attack of influenza occurring in January; since then, uneventful. There has been no recurrence of the hernia, pain, or gastric distress.

Lancet-Clinic, Cincinnati

July 30

- 15 Flexner's Antimeningitis Serum in Treatment of Epidemic Cerebrospinal Meningitis. H. Woolery, Bloomington, Ind.
- 16 Lichen Ruber Acuminatus. E. H. Shields, Cincinnati.
- 17 The Relation of Malaria to Life-Insurance Examinations. A. E. Cox, Helena, Ark.

Northwestern Lancet, Minneapolis

July 15

- 18 Epigastric Hernia. E. P. Quain, Bismarck, N. Dak.
- 19 A Trip Around the World. G. C. Barton, Minneapolis.
- 20 Tuberculosis: Its Origin and How to Prevent it. W. Ham-broer, Eden Valley, Minn.

Medical Fortnightly, St. Louis

July 25

- 21 Pellagra. B. Allison and W. Allison, Fort Worth, Texas.

Journal Missouri State Medical Association, St. Louis

July

- 22 *The Relation of the Physician to the Public. T. Brown, Hamilton.
- 23 The Future Policies of the Medical Profession. N. P. Wood, Independence.

22. **The Physician and the Public.**—It is pointed out by Brown that the most important problem concerning the dignity and material welfare of the medical profession to-day is to convince men, women and children that we are striving to be helpful and protect them from the disasters following ignorance, superstition, incompetence and disease; that while physicians live by their work, they still sacrifice for the public service much in their lives that men hold good; that they are seeking after medical truth, and desire the fellowship of all who are working for the same great object. If this were the fixed belief of the public the advice and desires of physicians would be speedily translated into laws regulating the profession and protecting the public health. Physicians would not then plead in vain for securing the higher standard of education, morality and scientific attainments for the medical profession. Protests against the use of preserva-

tives in food products would not be ignored by competent lawmakers. The triumph of the profession in conquering pain, sepsis, smallpox, yellow fever, malaria, diphtheria, rabies; in robbing all the infectious diseases of many of their terrors; in creating a substantial hope for many now tainted with the white plague; developing the astounding successes of modern surgery, would be acclaimed the highest and most useful achievements of mankind.

Detroit Medical Journal:

July.

- 24 Etiology of Summer Diarrheas. J. E. Davis, Detroit.
- 25 Treatment of Summer Diarrhea in Infants. H. M. Rich, Detroit.
- 26 The Thymus Gland. G. Pratt, Detroit.

Medical Herald, St. Joseph, Mo.

July

- 27 *Why the Indifference of the Profession to Morphinism Should be Changed. S. G. Burnett, Kansas City.
- 28 Fundamental Principles the Violation of Which Evolves Nervous and Mental Diseases and Limit Our Usefulness as Good Citizens. J. M. Aiken, Omaha.
- 29 *Neglect of the Sacroiliac Joint by the General Practitioner. E. Evans, La Crosse, Wis.
- 30 Calx Sulphurata. W. C. Abbott, Chicago.

27. Abstracted in THE JOURNAL, April 2, 1910, p. 1159.

29. Abstracted in THE JOURNAL, March 26, 1910, p. 1075.

American Journal of Physiology, Boston

August

- 31 *The Alleged Specific Anesthetic Properties of Magnesium Salts. C. C. Guthrie, St. Louis, and A. H. Ryan, Pittsburg.
- 32 *The Relation of the Pancreas to the Blood Diastases in the Dog. H. Otten and T. C. Galloway, Chicago.
- 33 *Effects of Thyroidectomy on the Resistance of Rats to Morphin Poisoning. W. H. Olds, Chicago.
- 34 The Mechanism of Tone in Plain Muscle. D. J. Lingle, Chicago.

31. **Specific Anesthetic Properties of Magnesium Salts.**—Meltzer and Auer have attributed specific anesthetic powers to the magnesium salts but Guthrie and Ryan explain the effects on the ground that asphyxia is produced, and in the present article they describe further experiments in support of this view. Their principal experiments were made on frogs and lead them to conclude that a very marked early effect of magnesium salts when injected subcutaneously in sufficient doses is a paralysis of the peripheral neuromuscular apparatus of voluntary muscles. An animal in such a condition is sensitive, but ordinarily does not respond to sensory stimulation because it is paralyzed. Paralysis of the more distal skeletal muscles is followed by a gradual paralysis of the respiratory muscles which results in a decrease in the pulmonary ventilation. This, in conjunction with the probable action of the salt on other processes concerned in respiration, produces a state of partial asphyxia manifested by the usual symptoms. Anesthesia may or may not occur at this stage, depending on the degree of asphyxiation. They believe, therefore, that the anesthesia that may follow the infection of magnesium sulphate solutions is due chiefly to asphyxia. Magnesium salts cannot be regarded as having marked specific anesthetic properties.

32. **Relation of the Pancreas to Blood Diastases in the Dog.**—The work of Otten and Galloway indicates that the source of the diastases in the blood is not exclusively in the pancreas. That the pancreas plays an important rôle in the production of the diastases or in their destruction, is indicated by the fact that after removal of the pancreas, there is a markedly diminished concentration of the diastases in the blood which does not keep pace with the progressive marasmus nor correspond to the state of nutrition or kind of food. This concentration approaches a constant level, neither falling below a certain point nor returning to normal. Since the concentration of the diastases in the blood and in the lymph does not seem to parallel the hyperglycemia and diabetes after pancreatectomy, the diastatic ferments, as Schlesinger has pointed out, seem to have no direct relation to sugar metabolism, and as Carlson and Luckhardt suggest, appear to be waste products. It may be, however, as Schlesinger considers, that in some mammals the main bulk of the blood diastases are pancreas diastases reabsorbed from the external

secretion. If this is so, then on removal of the pancreatic factor, the blood and lymph diastases remaining would be those of the liver and other tissues, such as the intestinal mucosa, and possibly the leukocytes. Two factors must then be considered in connection with the diastases of the blood. First, the diastases of pancreatic origin, exogenous in a sense, and of no significance in carbohydrate metabolism; and second, endo-enzymes, possibly largely from the liver, which before leaving the tissue cells may play an important rôle in the destruction of glycogen.

33. **Resistance of Rats to Morphin Poisoning.**—Hunt found that after thyroid feeding, rats and mice are less resistant to morphin poisoning than before. According to Olds, thyroidectomized rats show the same resistance to morphin poisoning as normal rats, at least, within a period of from 8 to 28 days after the operation. These facts seem to question or at least limit the Hunt test as a test for the concentration of thyroid secretion in the body fluids.

Old Dominion Journal of Medicine and Surgery, Richmond

July

- 35 A Half Century in Medicine. S. Baruch, New York City.
- 36 Hyperchlorhydria. C. A. Caton, New Bern, N. C.
- 37 The Heart in Lobar Pneumonia. G. Baughman, Richmond.
- 38 Suppuration of the Retroperitoneal Glands in Typhoid Stimulating Perforation. B. M. Randolph, Washington, D. C.

Journal Indiana State Medical Society, Fort Wayne

July

- 39 Diagnosis and Treatment of Cerebrospinal Meningitis. W. D. Hoskins, Indianapolis.
- 40 Standardization of Medicinal Preparations. A. D. Thorburn, Indianapolis.
- 41 Sketches of the Medical History of Indiana. G. W. H. Kemper, Muncie.
- 42 Pellagra in Indiana. G. D. Marshall, Kokomo.

Alabama Medical Journal, Birmingham

July

- 43 The Value of Employment and Its Relation to Certain Neuroses and Psychoses. W. D. Partlow, Tuscaloosa.
- 44 *Cholecystitis Complicating Typhoid. E. M. Prince, Birmingham.
- 45 Orthopedic Dressings and Appliances. R. C. Evans, Birmingham.
- 46 Pterygium Operations. H. C. Creely, Birmingham.
- 47 *Obiteration of the Craving for Narcotics.—Review of Article of Dr. Lambert. G. E. Pettet, Memphis.

44. **Cholecystitis Simulating Typhoid.**—Prince adds two cases to three previously published. In the first case the symptoms led to the diagnosis of perforation of the intestines. An incision was made in the median line and the small intestines rapidly examined, which showed no symptoms of perforation. The gall-bladder was then examined by palpation and found very much distended. Eight or ten stones were removed and some bile was discharged after the first flow of pus. In the second case a diagnosis of typhoid complicated by cholecystitis was made. The gall-bladder contained clotted bile.

47. Practically the same article was published in THE JOURNAL, May 14, 1910, p. 1593.

Journal of Biological Chemistry, Baltimore

July

- 48. The Hemocyanin of *Limulus Polyphemus*. C. L. Aisberg and E. D. Clark, Boston.
- 49 The Preparation of Crystin. O. Folin, Boston.
- 50 *Experiments Relating to the Mode of Decomposition of Tyrosin and of Related Substances in the Animal Body. H. D. Dakin, New York.
- 51 The Fate of Inactive Tyrosin in the Animal Body. H. D. Dakin, New York.
- 52 The Mode of Oxidation of Phenyl Derivatives of Fatty Acids: A Correction. H. D. Dakin, New York.
- 53 Alkylamines as Products of the Kjeldahl Digestion. C. C. Erdmann, Waverley, Mass.
- 54 The Alleged Occurrence of Trimethylamin in Urine. C. C. Erdmann, Waverley, Mass.
- 55 The Study of Autolyses of Physicochemical Methods. R. L. Benson and H. G. Wells, Chicago.
- 56 A Method of Treating and Preserving Large Quantities of Urine for Inorganic Analysis. E. A. Slagle, Baltimore.
- 57 Phosphorus in Beef Animals. C. K. Francis and P. F. Trowbridge, Columbia, Mo.
- 58 Chemical Tests for Blood. P. A. Kober, W. G. Lyle, and J. T. Marshall, New York.

50. **Decomposition of Tyrosin.**—The decomposition of tyrosin has attracted considerable attention because of the fact that it is the precursor of homogentisic acid which appears in the

urine in alkaptonuria. It has been claimed that homogentisic acid is an intermediary step in the normal catabolism of tyrosin and the similar compound phenylalanin. Those who maintain this view consider that alcaptonuria is simply due to a failure of the organism to oxidize the homogentisic acid formed. Dakin attempted to determine this question by administering a compound of tyrosin, and found no evidence of the formation of homogentisic acid. In further experiments with the administration of inactive tyrosin in such quantities that some of it appeared unchanged in the urine, no homogentisic acid could be detected, so that the author concludes that this substance is not a necessary step in the metabolism of tyrosin.

Southern California Practitioner, Los Angeles

July

- 59 Symptoms and Differential Diagnosis of Ulcer of the Stomach and Duodenum and Gall-Stones. W. A. Edwards, Los Angeles.
- 60 Idem. E. C. Moore, Los Angeles.
- 61 Ankylostomiasis. C. L. Cole, Prescott, Ariz.
- 62 First Aid in Eye Injuries. F. W. Miller, Los Angeles.
- 63 Medical Expert Testimony. E. Wing, Los Angeles.

New Orleans Medical and Surgical Journal

July

- 64 Disease in the Tropics. C. Wellmann, Oakland, Cal.
- 65 Hemorrhage from the Genitals of the Female New-Born Infant. M. A. Shlenker, New Orleans.
- 66 The Nose, Throat and Ear in Influenza. A. I. Weil, New Orleans.

Gulf States Journal of Medicine and Surgery and Journal of the Southern Medical Association, Mobile

July

- 67 *The Expenses Necessary for Sanitation in the Tropics. W. C. Gorgas, Ancon, Canal Zone.
- 68 Pellagra. E. M. Mason, Mobile.
- 69 Geographic Distribution of Uncinariasis in Alabama. G. J. Winthrop and H. P. Cole, Mobile.
- 70 *Uncinariasis with Post-Mortem. W. E. Ross, Jacksonville, Fla.
- 71 The Prophylaxis of Uncinariasis. G. Dock, St. Louis.
- 72 Symptomatology of Yellow Fever. C. H. Mohr, Mobile.
- 73 Radium Therapy. F. G. Hodgson, Atlanta.

67. **Sanitation in the Tropics.**—The object of Gorgas' paper is to show that the necessary sanitation in the tropics can be so economically done that it is within the reach of all, and that sanitary work on the Isthmus will demonstrate to the world that the white man can live and work in any part of the tropics and maintain good health, and that the settling of the tropics by the Caucasian will date from the completion of the Panama Canal.

70. **Uncinariasis.**—The post-mortem report and anatomic diagnosis in Ross' case was as follows: Anemia; emaciation; ascites; cardiac dilatation with relative mitral and tricuspid insufficiency; myocardial degeneration; edema of lungs; chronic splenitis; lymphadenitis; excoriation and ulceration of lining of jejunum and ileum, and fatty infiltration of liver.

Wisconsin Medical Journal, Milwaukee,

July

- 74 *Medical Education and Medicine. E. Evans, La Crosse.
- 75 The Medical Experiences of Benvenuto Cellini. A. W. Myers, Milwaukee.

74. Abstracted in THE JOURNAL, July 23, 1910, p. 342.

Memphis Medical Monthly

June

- 76 Duties and Responsibilities of the Surgeon and Some of the Things the Public has a Right to Expect of Those Assuming to do Surgery. F. D. Smythe, Memphis.
- 77 Rheumatism and Infection of Joints. M. G. Thompson, Hot Springs, Ark.
- 78 Important Requirements in Doing Abdominal Surgery. J. A. Crisler, Memphis.
- 79 Cancer of the Female Breast. J. T. Allen, Brownsville, Tenn.

Monthly Cyclopaedia and Medical Bulletin, Philadelphia

July

- 80 Treatment of Leukemia by the Roentgen Ray. R. W. Wilcox, New York.
- 81 *Diabetes as an Infectious Disease. A. King, Portland, Me.
- 82 The Growth of Therapeutic Nihilism. F. S. Mason, New York.
- 83 Alcohol as an Active Cause of Insanity. F. Woodbury, Philadelphia.
- 84 Alcohol in Therapeutics. C. E. deM. Sajous, Philadelphia.

81. Abstracted in THE JOURNAL, May 28, 1910, p. 1811.

Journal of Pharmacology and Experimental Therapeutics,
Baltimore

July

- 85 *Study of the Functional Activity of the Kidneys by Means of Phenolsulphonephthalein. L. G. Rowntree and J. T. Geraghty, Baltimore.
- 86 Practical Method for the Preparation of Phenolsulphonephthalein. E. A. Slagle, Baltimore.

85. Functional Activity of the Kidneys.—In all, over 200 functional tests with phenolsulphonephthalein have been performed by Rowntree and Geraghty on 150 different subjects. In normal cases the drug appears in the urine in from 5 to 10 minutes, and 40 and 60 per cent. of the 6 gm. dose, the average being about 50 per cent., is recovered in the first hour. From 15 to 25 per cent. of the drug administered is recovered in the second hour, making the total recovery for two hours from 61 to 85 per cent. The authors do not consider the time of total elimination as of so much value as the amount of elimination for a definite period. The time of appearance of phthalein in the urine is from 5 to 10 minutes when the secretion of urine is free, but even in health this may be delayed when the secretion is very scanty. Following its appearance the intensity rapidly increases and reaches its maximum in from 15 to 20 minutes. At the end of from an hour to an hour and a half, as a rule, an appreciable decrease in the density becomes manifest. A tapering diminution occurs from the end of the first hour. At the end of the second hour only a definite pink is obtained on addition of an alkali. In the majority of instances excretion is practically complete at the end of two hours. The application of this test in the various types of nephritis has given the following results:

In 3 cases of acute nephritis no increased permeability of the kidney has been demonstrated, but in 2 out of the 3 cases a marked decrease in the amount of elimination has been observed. In 8 cases of parenchymatous nephritis with one exception there has been a marked decrease in the amount excreted. In one case only 10 per cent. was excreted in two hours. The greatest decrease has been noted in cases in which clinically marked secondary sclerotic changes were considered to be present. In 10 cases of chronic interstitial nephritis a low output was encountered in each instance, the decrease being usually proportionate to the degree of severity of the disease as estimated clinically. In 2 cases only a trace of the drug—less than 1 per cent.—was eliminated in the course of an hour. Both patients died of uremia within 2 months. In 60 cases with obstruction in the lower urinary tract, almost all being patients with hypertrophy of the prostate, the phthalein test has given valuable information. As a rule, the test has demonstrated the greatest impairment of function in those cases which have large residual urine and have not been leading a catheter life. In many instances in which the output of the drug was low when the patient was first seen, adequate regimen has resulted in a decided improvement of the kidney function as indicated by the test. When the time of appearance is delayed beyond 25 minutes and the output of the drug is below 20 per cent. for the first hour, operation is postponed regardless of the patient's clinical condition. If, under routine treatment, the output remains low but constant, the renal function is probably in a stable condition and the operation may be undertaken, care being taken to select an anesthetic which will not further depress the renal function. In one instance, a successful operation was performed with an output of 8 per cent. for the first hour, but this output had remained constant for a period of 5 weeks. The low output here was ascribed to chronic interstitial changes in the kidney, and nitrous oxid was accordingly employed. Repeated determinations should be made, and except when unavoidable, operations should not be performed when the tests indicate a decreasing function. Again, when only a trace of dye is excreted operation should not be attempted, as grave renal changes exist.

The test has made it possible, the authors declare, to select a time for operation when the kidneys have regained their full functional power and stability. In no case in which the functional test indicated an efficient or stable renal function prior to operation, has any evidence of renal inefficiency

become apparent subsequently. The authors conclude that phenolsulphonephthalein itself is better adapted for use as a functional test than any other drug previously employed for the same purpose on account of its early appearance in the urine and the rapidity and completeness of elimination by the kidney.

Ophthalmic Record, Chicago

July

- 87 Importance of Prompt X-Ray Examination in Penetrating Wounds of the Eyeball in which the Foreign Body can Neither be Seen nor Accounted For. R. L. Randolph, Baltimore.
- 88 city of the Cornea Following the Use J. Green, St. Louis.
- 89 N. M. Black, Milwaukee.
- 90 A Traumatic Cataract Operation. W. S. Windle, Oskaloosa, Ia.
- 91 Device for Pneumomassage of the Eye. F. B. Eaton, Portland, Ore.
- 92 *Conjunctival Flaps in Ophthalmic Surgery. W. G. M. Byers, Montreal.
- 93 The Joint Removal of Capsule and Lens. R. Sattler, Cincinnati.
- 94 Colored Tonic Glass for Use in Examining Cases of Ocular Paralysis. W. G. M. Byers, Montreal.
- 95 Criticism of the Smith Indian Cataract Operation of Extraction in the Capsule. P. P. Kilkelly, Bombay, India.
- 96 A Splinter of Wood in the Left Orbit for Fifteen Years. H. E. Randall, Flint, Mich.
- 97 An Eye-Shade for the Iris Diaphragm Chimney, Combined with Device for Holding a Retinoscope. J. N. Rhoads, Philadelphia.

92. Published in the *Montreal Medical Journal*, July, 1910.

Journal of Ophthalmology and Oto-Laryngology, Chicago

July

- 98 Etiology of Cataract. L. Stricker, Cincinnati.
- 99 Tone Perception. W. S. Bryant, New York.

Kansas City Medical Index-Lancet

July

- 100 Stigmata of Nervous Diseases. J. Punton, Kansas City.
- 102 The Tuberculin Blister Reaction. H. deC. Woodcock, Leeds, England.
- 103 Nursing for the Neurologist, the Psychic Factor: What to Avoid, the Principles that Guide. T. A. Williams, Washington, D. C.

Atlanta Journal-Record of Medicine

July

- 104 Hydrotherapy. L. Amster, Atlanta, Ga.
- 105 Thoughts on Tuberculosis. G. Brown, Atlanta, Ga.
- 106 Is There Too Much Surgery? W. W. Mangum, Rome, Ga.
- 107 Aphasia. T. A. Williams, Washington, D. C.
- 108 Tics in Children, and Their Treatment. H. C. Whetchel, Douglas, Ga.
- 109 An Unusual Instance of Poisoning with Argyrol Injected into the Deep Urethra and Bladder. E. G. Ballenger, Atlanta, Ga.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

July 23

- 1 An Exercise on Heart Disease. N. Moore.
- 2 *Epilepsy. W. A. Turner.
- 3 Ferro-Silicon: The Poisonous Gases Liable to be Evolved Therefrom. H. W. Hake.
- 4 The Notification of Consumption. R. Farquharson.
- 5 *Dermato-Myositis with Recovery. N. C. Gwynn and W. Gordon.
- 6 Examination of the Blood Serum of Idiots by the Wassermann Reaction. H. R. Dean.
- 7 The Medical Proposals of the Minority Report: An Appeal to the Medical Profession. H. Beckett-Overy, S. Hastings and A. Freeman.
- 8 Tuberculosis in Its Relation to the Generative Functions. J. T. R. Davison.
- 9 Suppurative Perichondritis of the Larynx in the Course of Acute Pneumonia. Recovery. J. Collier and H. S. Barwell.
- 10 *The Treatment of Rheumatism by Bee Stings. F. H. Maberly.

2. Epilepsy.—There is no single specific remedy in the treatment of epilepsy, says Turner, although the alkaline salts of bromin come nearest to this definition. But the influence of the bromids on epileptic convulsions is variable and uncertain. In the first place, bromid medication may arrest the seizures immediately, or within a short period of their administration, temporarily or permanently. Second, the bromids may induce a lessening in the severity and frequency of the seizures. Third, the bromids may exert no influence at all on the disease, or may even augment the frequency or severity of the seizures. Under the influence of the salts

of bromin a considerable number of cases of epilepsy are temporarily "cured" or materially improved. Bromid treatment should be commenced at the earliest possible time after the onset of the fits. If benefit does not follow a daily dose of from 45 to 75 grains of one or a combination of the bromid salts, some other remedy or method of treatment should be sought for and applied. Turner holds that the large doses sometimes prescribed—from 100 to 150 grains daily—although no doubt suppressing the seizures for a time, induce other and more serious phenomena.

Of the combinations of the bromids with other remedies Turner has found Gelineau's formula the most useful and satisfactory. It is prescribed in the form of dragées, containing 1 gram of potassium bromid, $\frac{1}{4}$ milligram of picrotoxin, and $\frac{1}{2}$ milligram of the arseniate of antimony. He has used the dragées in all forms of epilepsy with considerable success. The method of prescribing them is simple: One dragée to be taken either during or immediately after a meal thrice daily for a week, an additional dragée being added weekly until the patient is taking 4, 5 or 6 per diem. Turner has found 6 dragées a day usually sufficient to hold the fits in check, although according to Gelineau as many as 10 or 12 may be taken daily. In patients with confirmed epilepsy with mental deterioration the use of bromids is of relatively little value. Their continued administration in these cases does, however, produce a diminution in the number, and perhaps in the severity, of the seizures.

5. *Dermato-Myositis*.—The case reported by Gwynn and Gordon seems a fairly typical one, but presents no new features and affords no fresh clue to the etiology. The clinical picture suggested a toxemia arising from some infection of the alimentary canal, and efforts were therefore directed to disinfection of the mouth, throat, stomach and bowels.

8. *Tuberculosis and the Generative Functions*.—Davison points out that Koch's bacillus can only successfully invade organisms which lack proper defense; we know that the lines of natural defense are weakened when the organism loses its vigor; we know that sexual functions exercised in immediate degree, or exercised by organisms in a state of degeneration, spend inordinately the strength of the individual. Finally, we know that modern hygienic measures snatch from a sure death many children who afterward pass on to the reproductive epochs of life with frail organisms. This simultaneous occurrence of the great sexual activity, or sexual activity exercised under disadvantageous conditions (maturity in both sexes and advanced maturity in the male), and great mortality from tuberculosis cannot, therefore, be a mere coincidence—the first must be the cause of the second.

10. *Treatment of Rheumatism by Bee-Stings*.—Maberly reports several cases of chronic, apparently intractable cases of rheumatism which were cured to all intents and purposes by being exposed to bee-stings at regular intervals. One, a man about 35 years of age, had been laid up three times with rheumatic fever for 6 or 7 months each time, and found his joints increasingly stiff with each attack. In his case the bee stings did marvels. His feet had always been stiff from the first attack, but now he could walk anywhere and "did" about 20 miles every Sunday. His ankle movements were perfect and he stood on his toes quite easily. He says that he always ate and drank what he liked, and whenever he could catch a bee in his garden he did so and put it on. Maberly saw a number of other cases, some of old-standing chronic rheumatism, both in elderly and younger subjects, and all were doing well, while in nearly all the usual remedies had been tried without any good results.

British Medical Journal, London

July 23

- 11 Duodenal Ulcer. G. Rankin.
- 12 *Tubercle Bacilli in the Feces in Tuberculosis. R. W. Philip and A. E. Porter.
- 13 *Experimental Evidence for the Theory of the Neurogenic Coordination of the Heart Pulse. H. Kronecker.
- 14 *Ocular Condition of Mongolian Imbeciles. F. H. Pearce, R. Rankine and A. W. Ormond.
- 15 Chronic Toxemia at Vittel. H. J. Johnston-Lavis.
- 16 Scarlatina Maligna. A. Gregory.
- 17 *Recurrent Monstriparity. E. N. Burnett.
- 18 *Turpentine Enemata in the Treatment of Enteric Fever. W. J. J. Arnold.

12. *Tubercle Bacilli in the Feces*.—Altogether 109 different specimens were examined by Philip and Porter. Of these, 99 were from patients suffering from pulmonary tuberculosis, in different stages of the disease. None of the patients had intestinal tuberculosis. The other specimens were from one case of tuberculous peritonitis and from patients without a suspicion of tuberculous infection. Of the 109 patients, only 34 had sputum in which tubercle bacilli had been discovered; 42 had sputum in which no bacilli were found, and 24 had no sputum whatever. Of the 100 tuberculous patients examined, 79 were found to yield tubercle bacilli, and only 21 were negative. Of the 9 specimens from presumably normal subjects none yielded tubercle bacilli. Of the tuberculous patients all those with bacilli in the expectoration, with one exception, presented tubercle bacilli in the feces. Of the 42 patients in whom bacillary examination of the sputum was negative, 29 gave tubercle bacilli in the feces. Of the 24 without sputum, 17 showed bacilli in the stools.

Philip and Porter claim that the occurrence of the tubercle bacilli in the feces is independent of the presence of an intestinal lesion. Indeed, their presence has little reference to abdominal tuberculosis. They were actually absent from the only case of tuberculous peritonitis which was examined. The remarkable frequency of their occurrence in relation to pulmonary tuberculosis, not only in cases in which tubercle bacilli were determinable in the sputum, but also in cases in which either bacilli were absent or there was no sputum whatever, would seem to afford an important addition to their means of diagnosis in doubtful cases of pulmonary tuberculosis.

13. *Neurogenic Coordination of Heart Impulse*.—Kronecker's observations show that the coordination of the different parts of the heart is brought about through a nervous channel.

14. *Mongolian Imbeciles*.—The authors examined 28 patients corresponding to 56 eyes. Nineteen patients had lens changes (67.8 per cent.); 18 had typical lens changes (64.3 per cent.); 35 eyes had cataract changes of some sort (62.5 per cent.); 33 eyes had typical changes in the lens (58.9 per cent.); 10 patients had some inflammation of the lids (35.7 per cent.); 7 patients had squint; 4 had chorioidal changes, and 2 had nystagmus. The age of the youngest patient was 5 years and the oldest 43. The youngest showing cataract was 9 years, and the oldest patient had a well-developed typical cataract of the kind described. Fourteen patients had the interpalpebral fissure directed upward and outward.

17. *Recurrent Monstriparity*.—The patient, aged 35, a strong, healthy woman, gave birth to a full time female child having a large cephaloceles presenting from the vertex. The first pregnancy went to term, when a normal male child was born. The second pregnancy ended in abortion at the end of the third month; the fetus was anencephalic. The third pregnancy ended in abortion at the fifth month; the fetus (male) was anencephalic. The fourth pregnancy concluded at term, and is the subject of the present report.

18. *Treatment of Typhoid Fever*.—Arnold says that none of the various methods of treatment have hitherto been successful in definitely controlling the course or limiting the duration of typhoid fever. A measure employed at the Civil Hospital, St. Helena, during the past 4 or 5 years, has resulted in a distinct shortening of the average duration of illness, and in a remarkable amelioration of all the symptoms. This particular measure consists in the administration by the bowel of turpentine and olive oil from the first day of treatment, and its regular use at stated intervals until the temperature has been normal for at least ten days. When the case first comes under observation an enema of turpentine 5j and olive oil Oj is given by a funnel and tube. The foot of the bed being well raised, the emulsion is allowed to find its way slowly up the bowel. On the next day, or the day after, the same quantities are repeated. A preliminary thorough cleansing of the bowel by a dose, or preferably small divided doses, of calomel, followed by castor oil, prepares the ground for the action of the turpentine.

Clinical Journal, London

July 20

- 19 Vaccine Therapy. H. White, G. Ball, G. T. Westers, Dr. Horder and B. Harris.

Annals of Tropical Medicine and Parasitology, Liverpool

June

- 20 Sanitary Conditions and Diseases Prevailing in Manáos, North Brazil, 1905-1909. H. W. Thomas.
21 Pathologic Report of Esophagostomiasis in Man. H. W. Thomas.
22 Zoölogic Study of *Esophagostoma de Thomas*. A. Ralliet and A. Henry.
23 "Mossy" Foot of the Amazon Region, an Infective Verrucate Condition Affecting the Skin of the Upper and Lower Limbs. H. W. Thomas.
24 Guarana. P. H. Marsden.
25 Chemical Constituents of Guarana. M. Nierenstein.
26 Yellow Fever. H. W. Thomas.
27 Mosquitoes of the Amazon Region. R. Newstead and H. W. Thomas.

Archives Générales de Chirurgie, Paris

May, IV, No. 5, pp. 441-550

- 28 Arteriovenous Anastomosis. C. Monod and J. Vauvert. Commenced in No. 4.
29 Tumor of Accessory Parotid Gland. M. Florence.
30 Pathologic Anatomy and Treatment of Suppuration in the Prostate Due to the Gonococcus. Faxton Gardner (New York).
31 Efficacy of Continuous Extension in a Case of Scleritis. D. G. Zezas.

June, No. 6, pp. 551-660

- 32 Double Luxation of the Astragalus. Trénel. Worms and A. Boeckel.
33 Experimental End-to-End Suture of Vessels. (L'anastomose circulaire des vaisseaux par suture ou par appareils prothétiques.) C. Fleig.
34 Metal Brace for Fracture of Long Bones. (Procédé d'ostéosynthèse pour les fractures des diaphyses par brassière métallique.) E. Juvara.
35 Shortening and Fastening the Cecum Supplementary to Appendicectomy. (Cœcopicature et cœcoplexie complémentaires de l'appendicectomie.) P. Maclaure.

Bulletin de l'Académie de Médecine, Paris

July 5, LXXIV, No. 26, pp. 1-47

- 36 Serotherapy of Acute Articular Rheumatism and Wright Vaccine Treatment of Rheumatism. G. Rosenthal and F. Vidal.
37 *Method for Collecting Vital Statistics. (Vérification des décès et déclaration des maladies qui en ont été la cause.) M. Marquez.
38 *Granular Cirrhosis of the Liver. (Étiologie et prophylaxie de la cirrhose granuleuse du foie, dite encore cirrhose atrophique, cirrhose alcoolique, canolique, de Lanneec, etc.) M. Lancereaux.
39 *Suprahepatic Ballottement Sign of Echinococcus Cyst in the Liver. (Le ballottement sus-hépatique signe nouveau des kystes hydatiques de la convexité du foie.) A. Chauffard.
40 Pathologic Anatomy of Pachypleuritis. M. Letulle.

July 12, No. 27, pp. 48-80

- 41 *Incomplete or Anomalous Form of Coxalgia. E. Kirmisson.
42 *Preservation of Vaccine by Refrigeration. (Pulpes vaccinales et basses températures.) Kelsch.

37. Improved Death Certificates.—The mayor of Hyères in Southern France is a physician, and a double perforated certificate blank is in use there, to obviate the necessity for informing the friends of the cause of the death. Both blanks are filled out at the same time. The first is to be given to the family to be handed to the authorities as the death notice, and records the name, sex, age, residence, profession, date and physician's signature. The twin certificate records sex, age, married or single, profession, date of death, cause of death and the signature of the physician. The patient's name is not given in this certificate which the physician seals and mails to the mayor. When it is received at the city hall it is deposited in a special locked urn and this urn is opened and the contents officially examined and recorded only once or twice a year. There is thus nothing to conflict with the obligation of professional secrecy, the cause of death not accompanying the name of the individual, but all other details necessary for vital statistics are duly recorded. This system has been in use for nearly two years at Hyères and the workings have been exceptionally satisfactory.

38. Cause of Gin Liver.—Lancereaux has been conducting experimental research for years, the conclusions of which are that cirrhosis of the liver of this type is the result of the action of substances used in wine, beer, etc., for their preservation, especially potassium bisulphate. He was able to produce the typical lesions of gin liver by feeding animals with this salt. The other salts of potassium did not seem to cause disturbances of this kind.

39. See Paris Letter, July 30, page 413.

41. Incomplete Form of Coxalgia.—Kirmisson has encountered 5 cases of a hip joint disease which is distinguished by

lack of severe local symptoms and yet it entails extensive destruction of the joint. A little pain and slight limping were the maximum of the disturbance. In such a case described in detail, a boy of 11 showed no signs of vicious attitude and walking was not painful, but the joint seemed to be unusually relaxed, the condition resembling congenital dislocation. After the trouble had lasted about a year without any aggravation of symptoms, radioscopy revealed extreme atrophy of the head of the femur; it had almost disappeared, explaining the special form of the lameness. At each step the head slipped up on the ilium. Nothing except radioscopy would have suggested such extensive lesions. In another case the youth complained of his knee and limped a little; nine months later atrophy of the muscles on the same side was noticed. The limb was in slight abduction with outward rotation but no pain except when the hip joint was completely flexed. The general condition was good but radioscopy revealed manifest lesions in the head of the femur. In none of the 5 cases reported was there any difference in the length of the legs. In 1 case the symptoms were banished by extension but after an intercurrent measles the hip trouble returned and its tuberculous nature became manifest. As this form of hip joint disease develops so insidiously, it is liable to be confounded with coxa vara.

42. See Paris Letter, July 30, page 413.

Presse Médicale, Paris

July 9, XVIII, No. 55, pp. 521-536

- 43 *Resection of the Rectum with Continent Sphincter. A. Desjardins.
44 Sporotrichosis in Man from Laboratory Inoculation. De Beurmann and L. Ramond.
45 *Pleurisy and Hydrothorax with Heart Disease. R. Cruchet and R. Lautier.
46 Electricity in the Service of Medicine. (Les bases physiologiques de l'électricité médicale; électrothérapie, dans ses rapports avec la rééducation et la psychothérapie.) A. Zimmern and P. Coittenot.
47 Tridigital Exploration of the Head of the Femur. M. J. Gourdon.
48 *Kaolin Technic for Functional Stomach Tests. (De la mesure du volume total du contenu gastrique et de l'étude de la sécrétion moyenne de l'estomac.) L. Meunier.

July 13, No. 56, pp. 537-544

- 49 *Syphilitic Pleurisy. H. Roger.
50 Ethyl Chlorid in General Anesthesia. (De l'anesthésie générale de courte durée prolongée; nouveau dispositif instrumental.) L. Camus.
July 16, No. 57, pp. 545-552
51 The Primary Axillary Triangle in Hepatization of the Lung. E. Weil and G. Mouriquand.
52 Modified Catheterization of the Ureters. (Nouveau procédé de cathétérisme urétéral.) M. Guéin.

43. Resection of the Rectum with Continent Sphincter.—Desjardins introduces into the rectum a hard-rubber cylinder with cross-bar handle; the diameter is nearly that of the rectum and a deep groove is cut just below the rounding tip. Through an abdominal incision the rectum above the lesion is tied to the cylinder, the thread drawn into the groove. The abdomen is then sutured and the rectum, fastened to the cylinder, is then drawn out through the anus. The lesion can thus be resected outside the body. The protruding stump of the bowel is sutured to the anus just above the sphincter. The results have been complete recovery in two cases of cancer removed by this technic. In another case the cylinder was a straight one and the operation failed; since then he uses a curved cylinder that fits perfectly into the rectum. One of the patients operated on rides horseback now without any disturbances.

45. Pleurisy and Hydrothorax with Heart Disease.—The practical conclusions of this study of effusion in the pleura in the course of heart disease emphasize the importance of relieving the heart by prompt evacuation of the fluid as any effusion in the pleura imposes extra work on the heart.

48. Kaolin Technic for Functional Tests of the Stomach.—Meunier found that the various tests in vogue for estimating the functioning and functional capacity of the stomach all failed to yield reliable findings on account of the fact that the contents of the stomach do not blend to form a homogeneous mass but lie in layers. A portion of the stomach content taken for examination will give entirely different findings according to the spot from which it was taken. All this can be remedied, he states, by having the patient ingest

a suspension of kaolin or fuller's earth, 10 gm. in 100 c.c. of water, before the stomach contents are to be withdrawn. This forms a suspension with the stomach contents, and he aids in blending it by blowing in a little air with the sound just before withdrawing the stomach contents after the test meal. The stomach content thus withdrawn forms a milky suspension entirely homogeneous and with this the various tests are applied as under other conditions. As the amount of kaolin in each c.c. is known, evaporating a given amount of stomach content and calcining it leaves an ash which is practically nothing but kaolin, and from the amount of this in a given amount of stomach content it is easy to deduce the total volume of the latter.

49. **Syphilitic Pleurisy.**—Roger reports two cases of apparently typical pleurisy but the positive Wassermann reaction, the absence of albumin and of tubercle bacilli in the effusion, the negative results of inoculation of guinea-pigs and the rapid recovery under mercurial treatment, all confirmed the assumption of a syphilitic process in the pleura. In four other patients with tuberculous pleurisy but scanty pulmonary manifestations, the reaction for albumin in the sputum was always positive. He refers to two other recently published cases of tertiary syphilitic pleurisy; the Wassermann reaction was positive in both effusion and blood serum, and recovery was soon complete under mercurial treatment.

Semaine Médicale, Paris

July 20, XXX, No. 29, pp. 337-348

53 *Clinical Forms of Amyotrophic Rheumatism. M. Klippel and M. P. Weil.

54 *Distant Signs of Abdominal Cancers. F. Lejars.

53. **Clinical Forms of Rheumatism with Amyotrophy.**—Klippel and Weil call attention to the form of polyarthritis with ankylosis and such a degree of muscular atrophy that the latter may be said to dominate the clinical picture. In some cases only one joint is affected and the atrophy is restricted to this limb. In Deroche's case the ankylosis of the shoulder, elbow and hand was followed in less than 5 weeks by atrophy of the entire arm. They are inclined to ascribe the atrophy and also the joint trouble to some change in the axis-cylinder, especially as painful spasms, edema and fibrillary twitching in the muscle were frequent in their two cases on a gonorrheal basis. They review the literature on the subject in detail.

54. **Remote Signs of Abdominal Cancer.**—Lejars discusses the enlargement of the supraclavicular glands and the patch of induration in the pouch of Douglas and the tough shrivelling of the umbilicus as instructive signs of internal cancer. The ovary is a frequent location for transplantation metastasis of gastric or intestinal carcinoma, and the same effect of gravity is seen in the pelvic deposit in the pouch of Douglas. It is equally important to examine the umbilicus, induration and shrivelling at this point sometimes being the first clue to cancer within. In one such case, a robust man of 53 had complained of a little discomfort in the umbilicus and occasional slight pain. Otherwise he was in apparent perfect health, free from any gastro-intestinal disturbances. The umbilicus looked like orange skin, and there was induration but none beyond or below. Lejars diagnosed a deep latent cancer and this was confirmed by the death of the patient from cachexia in less than a year. In another case the umbilicus was apparently normal except that one side had retracted and palpation showed a small nodule below. There was suspicion of gastric cancer in this case and this finding in the umbilicus hastened operative treatment. It is possible that the secondary umbilical cancer may be taken for a hernia or an umbilical hernia may develop a cancerous nodule.

Berliner klinische Wochenschrift

July 4, XLVII, No. 27, pp. 1261-1303

55 *Treatment of Syphilis with Ehrlich's "606." (Behandlung der Syphilis mit Dioxydiamido-arsenobenzol.) W. Wechselmann.

56 *Diagnosis of Syphilis and Its Activity by Test Mercurial Injections. (Erkennung der Syphilis und ihrer Aktivität durch probatorische Quecksilberinjektionen.) F. Glaser.

57 Albumin Bodies and Fat Deposits in the Liver. (Eiweisskörper und Leberverfettung.) G. Rosenfeld.

58 *Prophylaxis of Caisson Disease. (Versuche über die Prophylaxe der Pressluftkrankheit.) A. Bornstein.

59 Changes in Organs after Extensive Saline Infusion. (Welche Organveränderungen bewirken grosse subcutane Kochsalzinfusionen?) S. Wilderö.

60 Mechanical Vibratory Treatment of Functional Vocal Disturbances. (Eine neue Methode zur Behandlung der funktionellen Stimmstörungen, nebst Bemerkungen zu ihrer Pathologie und Therapie.) T. S. Flatau.

61 Proportions of Blastase in Human Blood and Its Connection with Diabetes Mellitus. O. J. Wynhausen.

July 11, No. 28, pp. 1309-1352

62 *Chronic Febrile Ulcerative Procto-Sigmoiditis. H. Strauss.

63 Diphtheria Antitoxin. (Resultate der Serumtherapie bei 1231 tracheotomierten und intubierten Diphtheriepatienten, verglichen mit denen bei 605 Fällen vor dem Serum.) H. Timmer.

64 Serodiagnostics of Echinococcus Cyst. (Zur Kasuistik der Erkennung des multiloculären Echinococcus vermittelst der biologischen Komplementablenkungsreaktion.) A. N. Dobrotin.

65 *Idem. (Serodiagnostik der Echinokokkenkrankung.) K. Meyer.

66 *Endobronchial Therapy. A. Ephraim. Commenced in No. 27.

67 Nitrites, etc., as Causal Factor in Cholera. (Nitrit, salpetrige Säure und Stickoxyd als Choleragifte.) R. Emmerich.

68 Arabinosuria. (Ueber inaktive und rechtsdrehende Arabinosausscheidung im Harn.) L. Schuler.

69 Lipodemia. M. Adler.

70 Influence of Modern Lights on the Eye. (Einfluss der modernen Beleuchtungsquellen auf das Auge.) Hielbron.

55. **Treatment of Syphilis with Ehrlich's "606."**—The main points in Wechselmann's communication were mentioned in the Berlin Letters of July 23, page 326, and August 13, page 609.

56. **Test Injection of Mercury in Syphilis.**—Glaser reasoned that with a positive Wassermann reaction but no apparent manifestations of syphilis, an injection of mercury might destroy enough of the spirochetes to release endotoxins and cause fever from their absorption. He has consequently applied this test injection as a diagnostic measure and found the febrile reaction a delicate and reliable index. He gives a few typical curves to show the abrupt rise in temperature liable to follow an intragluteal injection of 0.05 or 0.1 gm. of salicylate of mercury. In some cases the febrile reaction was not observed until after the second, third or fourth injection; the fever generally lasted for one to three days. He regards it as a sign that further antisiphilitic treatment is needed, but he does not venture to draw any therapeutic conclusions from the absence of a febrile reaction in cases of latent syphilis giving a positive Wassermann reaction.

58. **Prophylaxis of Caisson Disease.**—Bornstein presents evidence to prove that retention of nitrogen is the main cause of the disturbances from caisson work, and that muscular exercise on coming out from the caisson works off this excess of nitrogen more rapidly than any other measure. Even climbing a long flight of steps on coming out is sufficient to throw off the surplus nitrogen. Since the workmen have had to climb nearly 75 feet to the surface in the work on the Elbe tunnel at Hamburg the proportion of workmen affected has dropped from over 3 to less than 0.4 per cent.

62. **Chronic, Febrile, Ulcerative Proctosigmoiditis.**—Strauss gives the autopsy findings in a case in which his diagnosis during life was confirmed post mortem. The process did not extend beyond the upper part of the sigmoid flexure and the pathologic changes were more pronounced downward. He describes further two more cases in which this localized inflammation induced fever but no tumefaction could be palpated and the sigmoid region was not tender. This lack of swelling and tenderness he has noticed in other cases of ulcerative processes in the sigmoid flexure, but the anus is liable to gape. The autopsy findings demonstrate that medical and local measures have little prospect of success in case of such extensive lesions and that operative treatment is necessary. Hermann reported in 1904 24 cured and 11 improved of 50 patients under operative treatment. Strauss advises an artificial anus made in the cecum or the lowest part of the ileum, to leave the inflamed section in peace. Operative treatment is indicated when the general health is suffering and months of local and internal measures have given no permanent relief. Medical measures alone will generally answer the purpose, as he shows by a case in which a young woman had an ulcerative inflammation for 17 cm. above the anus, but was entirely cured by local and general treatment kept up for several months.

66. **Endobronchial Therapy.**—Ephraim has an apparatus for spraying the bronchial ramifications, the flexible instrument being introduced down to the bifurcation, and reports its application in 68 cases of bronchial asthma, the ages ranging from 8 to 71. Only 53 were given the treatment systematically and of these 35 seem to be permanently cured, 6 improved, 5 transiently improved and in 7 no effect was manifest. He uses for the spray a solution of an anesthetic with epinephrin (novocain-suprarenin).

Deutsche medizinische Wochenschrift, Berlin

July 14, XXXVI, No. 28, pp. 1305-1352

- 71 Antiformin Test for Scanty Tubercle Bacilli in Scraps of Tissue, etc. (Anwendung des Uhlenhuthschen Verfahrens zum Nachweis spärlicher Tuberkelbazillen in Gewebsschnitten.) W. Berblinger.
- 72 A. Kappis.
- 73 Glands of the Thorax in Pulmonary drüsen des Thorax
- 74 Heart and Mitral Valve. (Traumatisch Herzruptur und Mitral-segelzerreissung.) W. Berblinger.
- 75 *Diagnosis of Duodenal Ulcers. (Zur Diagnose der Duodenal-geschwüre.) A. O. Günzburg.
- 76 *Granulomatous or Condylomatous Proliferation with Gonorrhea. V. Klingmüller.
- 77 *Torsion of the Omentum. (Netztorsion.) P. Steiner.
- 78 *Leukoplakia of the Bladder. (Zur Leukoplakie der Harn-blase.) P. A. Herzen.
- 79 The Causal Agent of Trachoma. (Natur des Trachomerre-gers.) K. Lindner.
- 80 Mite as Milbenart von Glyciphagus als Endoparasit.

72. **Traumatic Tuberculosis.**—Kappis relates the history of a roofer, about 25 years old, previously strong and apparently healthy, who fell from a height of three stories, a compound fracture of the right thigh resulting. An acute osteomyelitic process developed at the point of the fracture, of tuberculous nature, evidently traceable to an old apical tuberculous process. Amputation became necessary and the much debilitated patient succumbed to the loss of blood although this was only 200 c.c. If the extent of the process had been suspected before the operation the Momburg belt constriction would have been applied. Kappis adds that the family made no claim for damages from the industrial accident but such a claim would certainly have been allowed by the courts in this case.

73. **Enlarged Superficial Lymph Glands with Pulmonary Tuberculosis.**—Zebrowski found enlarged glands on the side of the chest in 186 out of 929 patients with unmistakable tuberculous lesions in the lungs or pleura, that is, in 20 per cent. He also found the enlarged glands in 2.58 per cent. of 1,629 patients without manifest signs of tuberculosis. In 14 in this latter group with enlarged glands the skin and conjunctiva tuberculin tests elicited a positive response, and these tests were not applied in the other 23 patients in this group. Nothing pathologic could be discovered by casual examination in 11 in this group. The enlarged glands were found along the middle axillary line or a little inward from this, along the long thoracic artery. In 12 of the 228 patients presenting these enlarged glands, they could be distinctly traced along the line of the pulsating vessel when looked at from the side, generally at about the fourth interspace and mostly on the right side. In one case the discovery of the enlarged glands first suggested possible tuberculosis of the lungs, and the glands subsided to normal size as the tuberculous process healed under treatment. He discusses the anatomic conditions responsible for involvement of these glands in the pathologic process beyond.

75. **Diagnosis of Duodenal Ulcers.**—Günzburg remarks that the pathologic anatomists still are discovering many duodenal ulcers that had escaped the clinician. In 8 of his total of 18 cases of duodenal ulcer autopsy confirmed his diagnosis; it was based on the pains coming on two or three hours after the meal and relieved by eating, also pains sometimes occurring at 1 or 2 a. m. These attacks of pain may recur through days and months; they are difficult to influence and appear and disappear with periodical regularity. With a history of this kind, duodenal ulcer is almost certain, especially if there is more or less blood in the stools or delay in evacuating a Leube test meal beyond seven hours. The

enlargement of the duodenum is also liable to induce a characteristic tympanitic percussion sound over the quadrate lobe of the liver. This tympanitic zone in the region of the quadrate lobe is caused by the dilated duodenum passing behind this lobe. When the duodenum returns to normal size, as after gastroenterostomy, this resonance is no longer perceived. It appears only when the liver is in its normal place, and when the dullness over the left lobe of the liver can be distinguished from the cardiac dullness. The colon must be emptied before percussing.

76. **Anal or Vulvar Condyloma with Gonorrhea.**—Klingmüller has encountered 8 cases of condylomatous proliferation around the anus or on the perineum of women with a gonorrheal process in the rectum and a case of a granulomatous growth on the prepuce of a male. He ascribes these proliferations to the gonococcus.

77. **Torsion of the Omentum.**—Steiner reports a case of ileus due to torsion of the omentum and compares the clinical picture with 66 similar cases on record. A coexisting hernia is mentioned in nearly every case; this leads to adhesions and the omentum becomes fastened and nodules are liable to develop in it, all favoring torsion. It was readily relieved by laparotomy and resection of the whole of the twisted part of the omentum in his case.

78. **Leukoplakia of the Bladder.**—Herzen reports a case in which he resected a patch of leukoplakia in the bladder, with the involved mucosa and submucosa, after high incision. The patch was 8 or 10 cm. long by 3 to 5 cm. wide; the bleeding surface left was cauterized with the Paquelin and the bladder wall drawn up over it with catgut sutures. The symptoms previously had been dysuria and bacteriuria but no tubercle bacilli had been found. The patient, a man of 24, has been in good health since the operation.

Medizinische Klinik, Berlin

July 17, VI, No. 29, pp. 1123-1162

- 81 *Diagnosis of Pancreas Disease. (Diagnose der Pankreaserkrankungen.) K. Glaessner.
- 82 *Diagnosis of Syphilitic Disease of Upper Air Passages. J. Zange.
- 83 *Psychopathology of the Tuberculous. (Psychopathologie der Tuberkulose.) G. Liebe.
- 84 Primary Hemorrhagic Glaucoma. W. Feilchenfeld.
- 85 Case of Aneurism of the Aorta from Articular Rheumatism. J. Ruppert.
- 86 Is it Necessary to Protect the Eyes against the Ultraviolet Rays? (Ist Schutz der Augen vor ultravioletten Strahlen notwe und Stockhausen.)
- 87 Idem.
- 88 *The Melanotic Reaction with Cancer. (Klinische Erfahrungen mit der Melostagminreaktion bei bösartigen Geschwülsten.) P. De Agostini.
- 89 Physiologic Action of Radioactive Saline Springs. F. Kriegl.

81. **Diagnosis of Pancreas Disease.**—Glaessner describes the various tests to aid in the diagnosis of pancreatic affections and advises their application. The main point, however, he remarks, is to have the possibility of pancreas trouble occur to one's mind.

82. **Diagnosis of Syphilitic Disturbances in the Upper Air Passages.**—Zange regards the Wassermann reaction as a powerful aid in differentiating suspicious lesions; negative Wassermann findings should impose caution. The lesions themselves are not characteristic, only their mode of development and history. Spirochetes are comparatively rare in tertiary lesions but inoculation of animals with scraps of suspicious tissue will at least exclude tuberculosis. He relates 11 case histories in which the Wassermann reaction gave the clue and led to effectual treatment. In a case with negative Wassermann reaction the findings seemed to be characteristic for gumma or a primary sore on the tonsils but the lesions subsided spontaneously in the course of a few weeks; the retrospective diagnosis was Vincent's angina, and mercurial treatment would have been an error. In another case the bones of the nose were being eaten away and everything except the negative Wassermann reaction indicated syphilis but an operation revealed a chronic osteomyelitic process and a prompt cure followed its evacuation. A mercurial injection for diagnostic purposes has little differential value in the tertiary phase of syphilis, as in many cases the system in this stage seems to be refractory to mercury and iodid.

53. **The Psychopathology of the Tuberculous.**—Liebe relates some of his experiences as director of a tuberculosis sanatorium and states that they could easily be duplicated by other sanatorium physicians, all showing a peculiar egotistic, irritable, spoiled-child attitude of many of the sanatorium patients, entirely contrary to what the same individuals presented in health. He regards these manifestations as part of the disease and states that the complaints and criticisms sometimes made of the institutions, sanatoriums, medical and other attendants, etc., belong also in this category.

58. **The Meiostagmin Reaction with Cancer.**—The experiences with 27 cases of cancer which are reported indicate that Ascoli's meiostagmin reaction may prove an instructive specific means of differentiating malignant disease. The reaction proved positive in all the cancer cases but positive only in 3 out of 27 cases of non-malignant affections.

Münchener medizinische Wochenschrift

July 12, LVH, No. 28, pp. 1581-1528

- 90 *Diagnosis and Treatment of Duodenal Ulcer before Perforation. (Nicht perforierte Duodenalgeschwüre.) J. P. zum Busch.
- 91 *The Hypophysis. A. Kohn.
- 92 *Combined Electric Treatment of Cancer. (Elpe neue Behandlungsmethode bösartiger Geschwülste.) C. Müller.
- 93 Experiences with Spinal Anesthesia. B. R. v. Arlt.
- 94 *Local Anesthesia for Minor Operations by the General Practitioner. J. Rothmann.
- 95 *Congestion Dermatoses. (Zur Diagnose und Therapie der Stauungsdermatosen.) P. Strauss.
- 96 Durable Moving Picture Apparatus for Recording Movements. (Apparat für photographische Registrierung von Bewegungsvorgängen.) R. Ohm.
- 97 Radiologie Activator. (Ueber Kreuznacher Aktivatoronstruktionen.) C. Ramsauer.
- 98 *Importance of Anesthetics to Reduce Appetite during Dietetic Treatment. (Anästhetika als Genussmittel und Arzneimittel für Diätikuren.) W. Sternberg.

90. **Duodenal Ulcer.**—This communication from London reports 14 patients with duodenal ulcer cured by operative treatment although one succumbed a month later to pneumonia. Another patient has required two operations since on account of ulcer in the jejunum. In 3 cases there was a concomitant gastric and duodenal ulcer. The operation was done under the diagnosis of cancer in some of the cases but in the others the trouble had been correctly diagnosed from the "hunger pain." This pain is ascribed by zum Busch to the opening of the pylorus when digestion is concluded, the passage of the chyme into the duodenum causing the characteristic pain at this time. In 5 other cases a duodenal ulcer was suspected but no operation was done; 3 of the patients have died, another is still living with much pain, the other has been lost to sight. He does not advocate surgical measures in the early cases but at once when there is recurrence or when the lesion may be regarded as chronic or there are hemorrhages and motor symptoms on the part of the stomach. The gastroenterostomy must always be followed by careful after-treatment, rest and dieting, as the operation alone does not heal the ulcer.

91. **The Hypophysis.**—Kohn reviews what is known to date in regard to the hypophysis and the interrelated ductless glands, remarking that it seems to be certain that the loss of the little parathyroids, not larger than a bean in size, is more serious for the general health than amputation of both legs. Research with extracts of the hypophysis have not given much information to date.

92. **Combined Electric Treatment of Cancer.**—Müller reports 18 cases of cancer in which he has applied a combination of Roentgen rays and high frequency currents with excellent effect.

94. **Local Anesthesia for Minor Operations by the General Practitioner.**—Rothmann recapitulates the details of the Schleich, Braun, Bockenheimer, and other techniques for local anesthesia and urges their more general use in office practice, enumerating the various minor lesions, boils, etc., for which these methods are particularly adapted.

95. **Skin Disease Due to Congestion.**—Strauss has been able to cure previously intractable skin affections by applying treatment based exclusively on relief of congestion in the parts—this cause for the trouble not having been suspected before. In one case a robust man, of 34, a druggist, had

been obliged to change his occupation on account of the severe itching eruption on both legs. It had tormented him for 25 years and had resisted all kinds of treatment, Roentgen rays, etc. Strauss diagnosed the case as a simple lichen maintained by varices in the deep veins, the superficial veins being apparently normal. The patient had applied for a course of Finsen treatment as a last resort, but Strauss dissuaded him from this and applied a compressing bandage after the legs had been elevated for an hour. Under this simple treatment for deep congestion with soothing applications to the superficial lesions, aggravated by scratching, the patient was completely cured in two months. He still wears a compressing bandage on his legs but the tissues feel soft and elastic and except for cicatricial traces there is nothing left of his old trouble.

98. **Anesthetics for Reducing Appetite and Thirst.**—Sternberg thinks that there is a field for the use of substances to dispel hunger in the course of dietetic restrictions as in treatment of gastric ulcer, etc. Cocain reduces hunger and thirst, and this is one of the principal uses for it among the African natives. In treatment of obesity and gastrointestinal ulcers, the abolition of subjective hunger and thirst would aid materially in the cure, and he thinks that this can be accomplished by administration of minute doses of cocain or chloroform water. The anesthetics may also come into play in treatment of dipsomania, bulimia, diabetes, gastrectasia, etc.

Wiener klinische Wochenschrift, Vienna

July 14, XXVIII, No. 28, pp. 1025-1064

- 99 Tuberculosis in Suckling Guinea-pigs. (Ueber Tuberkuloseinfektion im Säuglingsalter des Meerschweinchens.) J. Bartel.
- 100 *Tetany in the Elderly. (Tetanie im höheren Alter.) W. Wirth.
- 101 Muscular Rigidity as Sign of Pulmonary Disease. (Zur Frage der Muskelrigidität als Zeichen zur Erkennung von Lungenkrankheiten.) O. Orszag.
- 102 Operation on the Hypophysis. J. Fein.
- 103 Determination of Degree of Autointoxication in Diabetes by the Simple Ronchese-Malfatti Test for Ammonia in Urine. (Zur Beurteilung der Azidosis auf Grund eines einfachen Verfahrens der Ammoniakbestimmung im Harn der Diabetiker.) E. Marcovici.
- 104 *Impressions of America. (Äerztliche Reiseeindrücke aus Nordamerika.) A. v. Eiselsberg.
- 105 Experiences with Spengler's I. K. M. Gantz.

100. **Tetany in the Elderly.**—Wirth reports three cases of tetany in elderly persons with a chronic stomach or bowel trouble, the tetany being evidently of gastric origin and proving fatal in each case. Dilatation of the stomach preceded the tetany and the latter did not always develop in a complete form. In every case of dilatation of the stomach he advises applying the tests for tetany and, with positive findings, operative treatment without delay. The parathyroid glands may have something to do with the tetany, he suggests, becoming insufficient under the influence of the autointoxication. There is reason to suppose, he adds, that these cases of incomplete tetany are more common than is generally recognized.

104. **Impressions of America.**—In the course of these travel notes Professor von Eiselsberg remarks that the Americans are masters in the art of anesthetization and still cling to ether as it behaves so magically in their hands that there is no ground for seeking to improve on it. He comments on the composure of the American surgeon which nothing apparently can disturb, and the avoidance of speaking during operations, referring to Dr. Brewer's sign language which has been devised for the attendants to avoid speaking. He cites as a curious and interesting fact that in one large office building in Chicago 150 physicians have their offices "without its coming to any differences between them." He adds that none of the surgeons in chief at the hospitals is paid for his services, but on the other hand none has to pay a license fee as in Austria. In his country the hospitals are all built and maintained by the state or community, and he comments with admiring envy on the many privately endowed hospitals in this country and the quarters for pay-patients in the various hospitals, remarking that rooms for pay-patients were included in the plans for reconstruction of the great Vienna city hospital but were afterward abandoned, for one reason, he was told, on account of the objections of the general practitioners. In America, he tells his readers, the practitioners

never objected to this provision for pay-patients, he believes, and there would certainly have been opposition if it had conflicted in any way with any professional interests. The bond between the members of the profession is very close and any infringement of the rights of other members is rigorously punished (*Es ist das Gefühl der Kollegialität ein sehr feines*). Thus the American Medical Association, he continues, has been able with great energy and the best success to attack medical advertisements in the daily papers; one daily paper gets even, however, for the loss of this advertising patronage by printing almost daily communications from the camp of the antivivisectionists. He comments with astonishment on the fact that examination by a state board is required for practice in each separate state and that the right does not extend beyond the borders of the state, saying that when von Pirquet was called from Vienna to Baltimore as professor of pediatrics he had to take the state examination before being allowed to enter on his work. Visits to the leading surgeons are described at length and special points learned from them are emphasized. In conclusion he advises European physicians, and especially surgeons, to take a trip occasionally to America for post-graduate work and inspiration. American surgeons, to say the least, he adds, are abreast with the best in Europe so far as technic is concerned, and the scientific life there is so earnest and so active in the various scientific institutes and it is so stimulated and facilitated by the magnificent endowments, that there can be no doubt that in these institutes also the American colleagues keep pace with the best in Europe. Science and humanity can only benefit by this friendly rivalry between the various nations.

Zeitschrift für klinische Medizin, Berlin

LXX, Nos. 5-6, pp. 359-507. Last indexed June 4, page 1914

- 106 Tenacity of Cellular Activity and Its Relation to Pathology. (Ueber die Tenazität der Zelltätigkeit und ihre Beziehungen zur Pathologie.) W. Leube.
- 107 Roentgen-Ray Examination of the Peristalsis of the Colon. E. Stierlin.
- 108 Digitalis and Hypertrophy of the Heart. (Digitalis und Herzhypertrophie.) A. Caro.
- 109 Significance of the Dicrotic Pulse after Experimental Administration of Amyl Nitrite. (Bedeutung des dikroten Pulses nach Versuchen mit Amylnitrit.) A. Levy.
- 110 Behavior of Blood Pressure during Recuperation from Muscular Exercise. (Das Verhalten des Blutdrucks beim Menschen während der Erholung von Muskelarbeit.) B. Fantus and R. Staehelin.
- 111 Cardiac Neuroses and Conditions Suggesting Exophthalmic Goiter and their Different Behavior under Functional Tests with Epinephrin. (Ueber Herzneurose und Basedowoid und ihr verschiedenes Verhalten gegenüber der Funktionsprüfung mit Adrenalin.) B. Aschner.
- 112 Research on the Viscosity and Gas Content of Human Blood. (Viskosität und Gasgehalt des menschlichen Blutes.) H. Determann and F. Weil.
- 113 The Lung Capacity in Disease. (Untersuchungen über die Lungenfüllung bei Krankheiten.) A. Bittorf and J. Forsbach.
- 114 *Three Hundred and Eighty-three Cases of Bubonic Plague. (Zusammenfassende Betrachtung der 383 Pestfälle in Osaka während der letzten vier Jahre.) M. Masuyama.

114. Treatment of Plague.—Masuyama states that only 4 recovered out of 163 patients with bubonic plague treated by the ordinary medical measures alone, and in these 4 the suppurating bubo opened spontaneously. In 82 cases in which the bubo was enucleated or merely incised, 47 recovered, 28 of the 57 with enucleation and 25 with incision alone. Only 9 recovered out of 89 patients treated with serotherapy alone, but serotherapy supplemented by incision as soon as there was fluctuation in the bubo was followed by recovery in 78.1 per cent. of the 32 patients treated in this way, and by recovery of 31.2 per cent. of the 32 treated by serotherapy and enucleation. Japanese antiplague serum was used, and in large doses.

Zentralblatt für Chirurgie, Leipsic

July 16, XXXVII, No. 29, pp. 953-976

- 115 Sterilization of the Hands. (Zur Händedesinfektion.) O. Langemak.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 10, XXXI, No. 82, pp. 857-872

- 116 *Fat Embolism from Severe Burns. (Importanza dell'embolia adiposa, e delle alterazioni che si hanno nel sangue per spiegarci il meccanismo di morte rapida da scottatura.) G. Pacinotti.

July 12, No. 83, pp. 873-880

- 117 *Syphilis and Acute Infectious Diseases. C. Nicolini.

July 14, No. 84, pp. 881-888

- 118 Artificially Induced Pneumothorax in Case of Pulmonary Tuberculosis. R. Ferrario.

116. Fat Embolism from Burns.—In the case of fatal scalding reported by Pacinotti there was evidence of fat embolism probably responsible for the early death.

117. Syphilis and Acute Infectious Disease.—Nicolini relates the favorable influence in two cases of mercury given in the course of typhoid coming on about a year after syphilitic infection. The mercury did not aggravate the intercurrent infection while it seemed to modify favorably the syphilitic soil on which the infection was developing.

Ugeskrift for Læger, Copenhagen

July 7, LXXII, No. 27, pp. 803-828

- 119 Comparative Experiences with Various Methods for Examination of the Sputum. (Om Værdien af forskellige Homogeniserings- og Sedimenteringsmetoder til Paavising af Tuberkelbaciller i Expektorat.) G. Jørgensen. Commenced in No. 26.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

CEDEMA. A Study of the Physiology and the Pathology of Water Absorption by the Living Organism. By Martin H. Fischer, Professor of Pathology in the Oakland School of Medicine, Oakland, California. The 1909 Nathan Lewis Hatfield Prize Essay of the College of Physicians of Philadelphia. Republished with the consent of the Board of Trustees from the transactions of the college. Cloth. Price, \$2 net. Pp. 209, with illustrations. New York: John Wiley & Sons, 1910.

HOOKWORM DISEASE. Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. By George Dock, M.D., Professor of the Theory and Practice of Medicine, Medical Department Tulane University of Louisiana, and Charles C. Bass, M.D., Instructor of Medicine, and Clinical Medicine, Medical Department Tulane University of Louisiana, New Orleans. Cloth. Price, \$2.50. Pp. 250, with 50 illustrations. St. Louis: C. V. Mosby Co., 1910.

INDEX-CATALOGUE OF MEDICAL AND VETERINARY ZOOLOGY. Part 28, pp. 2169-2250 (Authors: Sim to von Stenitzer.) Part 29, pp. 2251-2326. (Authors: Stenroos to Szymanski.) By C. H. Wardell Stiles, Ph.D., Consulting Zoologist, Bureau of Animal Industry, and Albert Hassall, M.R.C.V.S., Assistant Zoologist, Bureau of Animal Industry. Bureau of Animal Industry. Bull. 39. U. S. Dept. of Agric. Paper. Washington: (Superintendent of Documents) Government Printing Office, 1910.

MEDICAL SERVICE IN CAMPAIGN. A Handbook for Medical Officers in the Field. By Major Paul F. Straub, Medical Corps (General Staff) United States Army. Prepared under the direction of the Surgeon-General, United States Army, and published by authority of the War Department. Morocco. Price, \$1.50. Pp. 164, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

THE DISEASES OF CHILDREN. By James F. Goodhart, M.D., of the Evelina Hospital for Sick Children. George F. Still, M.D., Professor of Diseases of Children, College, London. Cloth. Price, \$5. Pp. 9. Philadelphia: P. Blakiston's Son & Co., 1910.

ARBEITEN AUS DEM PHARMAZEUTISCHEN INSTITUT DER UNIVERSITÄT BERLIN. Von Dr. H. Thoms, Professor und Direktor des Pharmazeutischen Institutes der Universität Berlin. Volume VII. Comprising the work of 1909. Cloth. Price, 8.50 marks. Pp. 312, with illustrations. Vienna: Urban & Schwarzenberg, 1910.

TRANSACTIONS OF THE SEVENTH ANNUAL CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICERS WITH THE UNITED STATES PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE. Washington, D. C., June 2, 1909. Cloth. Pp. 86. Washington: (Superintendent of Documents) Government Printing Office, 1910.

PROCEEDINGS OF THE THIRTY-SECOND ANNUAL MEETING OF THE MISSOURI PHARMACEUTICAL ASSOCIATION. Held at Maryville, June 14-17, 1910. Constitution and roll of members. Missouri Board of Pharmacy Annual Report and Official Notice. Paper. Pp. 177, with illustrations.

TRANSACTIONS OF THE ROYAL ACADEMY OF MEDICINE. Vol. XXXVIII. Edited by James Craig, M.D., Physician to the Meath Hospital and Courthouse. Dublin: John Falconer, 55 Upper O'Connell Street, 1910.

STUDIES IN RELATION TO MALARIA. By Samuel T. Darling, M.D., Chief of Laboratory of the Board of Health, Department of Sanitation, Isthmian Canal Commission. Paper. Pp. 33. Washington: (Superintendent of Documents) Government Printing Office, 1910.

TWENTY-FIRST ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF FLORIDA, 1909. Approved by the Board in Annual Session Feb. 8, 1910, Jacksonville, Fla. With Vol. IV (1909) Florida Health Notes. Paper. Pp. 216, with illustrations.

REPORT FOR THE FIFTH FISCAL YEAR OF THE NATIONAL ASSOCIATION FOR THE STUDY AND EDUCATION OF EXCEPTIONAL CHILDREN. April, 1910. Paper. Pp. 26. Registered office "Watchung Crest," Plainfield, New Jersey.

GYNCOLOGICAL DIAGNOSIS. By Walter L. Burrage, M.D., Fellow of the American Gynecological Society. Cloth. Price, \$6. Pp. 656, with 207 illustrations. New York: D. Appleton & Co., 1910.

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RECENT PROGRESS IN THE SERUM DIAGNOSIS OF SYPHILIS *

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In reviewing the literature on the serum diagnosis of syphilis that has appeared since the last meeting of this Association, I have attempted to call attention to the progress that has been made during the year rather than to discuss at length the present status of our knowledge of the subject. The continued interest in the Wassermann reaction, and in various other serodiagnostic tests for syphilis, is shown by the large number of serious researches and clinical reports that have appeared during the past year. Four excellent books on the subject have been published in German, English and French. It was proper that the first of these should have been written by one of the discoverers of the Wassermann reaction, Carl Bruck,¹ whose personal experience with the test has been enormous. He has given a most excellent presentation of the whole subject from both the theoretical and practical standpoints. Noguchi² has also written a book of great value, in which special attention is devoted to his own modification. Interesting booklets have also been published by Gastou and Girault³ in France, and by Mulzer⁴ in Germany.

VARIOUS SERODIAGNOSTIC TESTS

Before discussing the more important subject of the Wassermann reaction I should like to call attention to some of the serodiagnostic tests for syphilis, depending on principles other than those of complement-fixation. I had supposed that the status of the various precipitation tests for syphilis was fairly well settled at the last meeting of this association. In a paper read on that occasion Wieder and L'Engle,⁵ from experiments with sodium taurocholate and glycocholate, lecithin, taurin and water, concluded that the proportion of positive results in non-syphilitics was too high to make the test of value. This seemed to be the prevailing opinion last year and is, I think, at present, in spite of two recent reports on the subject. Rosenfeld and Tannhauser,⁶ in

a series of 131 cases, obtained results that compared favorably with those of the Wassermann test. Tanton and Combe,⁷ from an examination of sixteen cases, concluded that the precipitation method was equally specific, in addition to being much simpler than the Wassermann reaction. Sourd and Pagniez,⁸ however, found that the precipitation test gave six positive reactions in non-syphilitic cases, and Paris and Sabaréanu,⁹ from an examination of fifty-three cases, conclude that the test is of no diagnostic value whatever. A similar opinion is expressed by Laub and Novotny¹⁰ in regard to the value of the reaction for pathologic-anatomic diagnosis, their experiments including a simultaneous test of ninety-eight cadaver serums. Unfavorable results are also reported by Minelli and Gavazzoni.¹¹ In all of the above communications the test with glycocholate of soda was the one employed.

Since the publication of Noguchi and Moore¹² last July on the butyric acid test in the metasymphilitic and nervous diseases, nothing further has been written on this method. In their experiments the writers found that the test was not absolutely specific, positive reactions having been obtained in two out of thirty-seven psychoses not in any way related to syphilis. In his book on serum diagnosis Noguchi states that the butyric acid test while not entirely specific, is at times more valuable than the Wassermann reaction in excluding syphilis, for instance, when the reaction is negative.

Assuming that the *modus operandi* of the Wassermann reaction depends on a precipitation, Jacobsthal¹³ suggests a method which he terms the "optic serodiagnosis of syphilis." The patient's serum is mixed with alcoholic extract of syphilitic liver in the proportion of 1 to 10 and the resulting precipitate is examined with the dark-field illuminator. A strong positive reaction appears as a clumpy precipitate, a weak positive reaction as a small conglomeration of little fat particles, while a negative is shown as a thick emulsion of very fine dancing fat particles. In comparing his method with the Wassermann reaction Jacobsthal claims that, after having acquired the necessary experience, his results with the two tests were identical.

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* Because of the space required, this article is abbreviated in THE JOURNAL, but it appears in full in the Transactions of the Section and in the author's reprints.

1. Bruck, C.: Die Serodiagnose der Syphilis, Julius Springer, Berlin, 1909.

2. Noguchi, H.: Serum Diagnosis of Syphilis, and the Butyric Acid Test for Syphilis, J. B. Lippincott, New York, 1909.

3. Gastou, P., and Girault, A.: Guide pratique du diagnostic de la syphilis, J. B. Baillière et Fils, Paris, 1910.

4. Mulzer, P.: Praktische Anleitung zur Syphilitisdiagnose auf biologischen Wege, Julius Springer, Berlin, 1910.

5. Wieder, H. S., and L'Engle, E. M.: Some Studies of the Precipitation Test for Syphilis, THE JOURNAL A. M. A., Nov. 6, 1909, p. 1535.

6. Rosenfeld, F., and Tannhauser: Die Serodiagnose der Lues mittels Ausflockung durch glykocholsaures Natrium, Deutsch. med. Wchnschr., 1910, xxxvi, 165.

7. Tanton and Combe, E.: Le séro-diagnostic de la syphilis par la méthode de Porges, Compt. rend. Soc. de biol., 1910, lxxviii, 436.

8. Le Sourd, L., and Pagniez, P.: La réaction précipitante du sérum syphilitique vis-à-vis des solutions de glycocholate de soude, Compt. rend. Soc. de biol., 1909, lxxvii, 84.

9. Paris, A., and Sabaréanu: La séro-précipitation chez les syphilitiques par le glycocholate de soude, Compt. rend. Soc. de biol., 1910, lxxviii, 290.

10. Laub, M., and Novotny, J.: Ueber die Brauchbarkeit der Porgesschen Ausflockungsreaktion für die Diagnose der Lues an Leichen, Ztsch. f. Immunitätsforsch., 1909, iii, 394.

11. Minelli, S., and Gavazzoni, G. A.: Il metodo di Porges nella sierodiagnosi della sifilide, Gazz. med. ital., 1909, lx, 191.

12. Noguchi, H., and Moore, J. W.: The Butyric Acid Test for Syphilis in the Diagnosis of Metasyphilitic and Other Nervous Diseases, Jour. Exper. Med., 1909, xl, 605.

13. Jacobsthal, E.: Die optische Serodiagnose der Syphilis, München. med. Wchnschr., 1909, lvi, 2667.

It can hardly be of more than historical interest to discuss the color reaction suggested by Schürmann,¹⁴ that has been so thoroughly discredited by subsequent experimentation. Indeed, it seems strange that so much has been written on the subject when it seemed almost from the start that the method was valueless. A few words about this proposed method may aid in preventing others from further experimentation. Schürmann thought that there might possibly be some substance in the blood of syphilitics whose presence could be recognized by a color reaction. It occurred to him that lactic acid might play a part in the reaction, as this substance had been present in one of his most reliable extracts. His first experience with Uffelmann's reagent being unsuccessful, he was led to use perhydrol in combination with phenol and chlorid of iron. According to Schürmann, when the reagents were mixed with normal serum a light green color appeared at the upper portion of the mixture. This either disappeared or changed to a light green tint on shaking, the solution remaining clear. When syphilitic serum was used a blackish-brown dull tint appeared almost immediately, the solution giving the impression of a thick mixture.

Employing his method in eighty-four cases simultaneously with the Wassermann test, Schürmann claimed to have obtained identical results. In a comparison of the Schürmann with the Wassermann test in 154 cases of undoubted syphilis Meirowsky¹⁵ obtained 62.3 per cent. of positive reactions for the Wassermann test as opposed to 14.9 per cent. for the Schürmann method. The list of investigators whose results have been unfavorable, and who conclude that the test is of no clinical value, includes Biach,¹⁶ Bonola,¹⁷ Braunstein,¹⁸ Bruck,¹ Galambos,¹⁹ Roth and Goldner,²⁰ Schminke and Stoeber,²¹ C. Stern,²² Stühmer,²³ Symanski, Hirschbruch and Gardiewski.²⁴ According to the chemical examination of Braunstein,¹⁸ the reaction is a process of oxidation, the perhydrol oxidizing the phenol by means of the iron chlorid.

Interesting results have been obtained by Nicolas, Favre and Gautier²⁵ with dermic and intradermic reactions in syphilis, analogous to the reaction caused by tuberculin for the diagnosis of tuberculosis. For this purpose the experimenters used a concentrated glycerinated extract of liver of syphilitic fetus which they termed "syphiline." When this extract was used by the dermic method (as in the von Pirquet test), no change was noted. When, however, the extract was injected intradermically a reaction consisting of redness and nodular infiltration was obtained in a large proportion of

the twelve cases examined. In a second contribution the same authors²⁶ give the results in fifty cases, of a comparison of their test with the Wassermann reaction. The results were in agreement in forty-two cases. Of the remaining eight cases five seemed to favor the correctness of the diagnosis by the intradermic test, while one favored the Wassermann method.

The relation of the Wassermann test to the antitryptic power of the blood in syphilis was studied by Fuerstenberg and Trebing.²⁷ The determination of the antitryptic index (using a modified method of Müller and Jochman) was made simultaneously with the Wassermann method in sixty-one cases of syphilis and other diseases. It was found that in cases of undoubted syphilis giving a positive reaction the antitryptic titer or index was never increased. In the majority of cases it was diminished. Whether this test will prove of value, from the fact that an increased antitryptic titer would seem to exclude syphilis, can be judged only after further investigation with this method.

According to Achard, Benard and Gagneux,²⁸ the so-called leukodiagnosis, which is based on specific sensitiveness of leukocytes *in vitro* to certain normal or pathologic products, may also be applied to syphilis. The specific principle used by these writers was a glycerinated extract of spleen of a congenitally syphilitic infant containing *Spirochaeta pallida*. The strongest influence on the leukocytes was obtained with a 5 per cent. dilution of the extract. In this strength the leukocytic activity was found to be more or less increased in syphilis, while it was not at all influenced in healthy subjects. It was found in their investigations that the strongest reactions correspond to the period of early secondary syphilis, while the reactions were weaker in hereditary manifestations of the disease and in tabes and paresis.

The reaction first described by Much and Holzmann was tried by Hamburger²⁹ in twenty-two cases of syphilis simultaneously with the Wassermann test. The results obtained were entirely contradictory, the writer concluding that the test has no value in syphilis. The reaction which has previously been seen only in certain insane persons, especially dementia præcox, consists in an inhibitory action to the hemolysing power of cobra venom.

In experimenting with various hemolysing agents in different diseases it was found by Richard Weil³⁰ that the erythrocytes of syphilitics were especially resistant to the hemolysing power of cobra venom. This fact has been utilized as the basis of a diagnostic test for syphilis that promises to be of considerable value. The technic of the procedure is as follows: Blood is drawn into a 2 per cent. solution of sodium citrate, washed and made into a 4 per cent. suspension in normal salt solution. It is then tested on the following day. Equal amounts of venom at 1 to 800 and 1 to 1,500 are added and after one hour of incubation the results are read. It has been

14. Schürmann, W.: Luesnachweis durch Farbenreaktion, Deutsch. med. Wchnschr., 1909, xxxv, 616.

15. Meirowsky, E.: Die Schürmannsche Methode des Luesnachweises mittels Farbenreaktion, Deutsch. med. Wchnschr., 1909, xxxv, 937.

16. Biach, M.: Ueber Luesnachweis durch Farbenreaktion, Wien. klin. Wchnschr., 1909, xxii, 606.

17. Bonola, F.: Sulla reazione cromatica di Schürmann per la sierodiagnosi della sifilide, Riforma med., 1909, xxv, 682.

18. Braunstein, A.: Ueber die Schürmannsche Farbenreaktion bei Lues, Ztschr. f. klin. med., 1909, lxxviii, 345.

19. Galambos, A.: Ueber den Wert der Farbenreaktion bei Lues, Deutsch. med. Wchnschr., 1909, xxxv, 976.

20. Roth, A., and Goldner, V.: Ueber die Farbenreaktion bei Lues, Orvosi hetil., 1909, No. 19. (Review in Monatsh. f. prakt. Dermat., 1909, l, 129.)

21. Schminke and Stoeber: Zur Kritik der Schürmannschen Farbenreaktion bei Lues, Deutsch. med. Wchnschr., 1909, xxxv, 937.

22. Stern, C.: Ueber die Bewertung einer Serum-Farbenreaktion zum Luesnachweis, Berl. klin. Wchnschr., 1909, xli, 1068.

23. Stühmer, A.: Luesnachweis durch Farbenreaktion, Fortsch. d. Med., 1909, xxvii, 714.

24. Symanski, Hirschbruch and Gardiewski: Luesnachweis durch Farbenreaktion, Berl. klin. Wchnschr., 1909, xli, 874.

25. Nicolas, J., Favre, M., and Gautier, C.: Intradermoréaction et cutiréaction avec la syphiline chez les syphilitiques, Compt. rend. Soc. de biol., 1910, lxxviii, 252.

26. Nicolas, J., Favre, M., and Charlet, L.: Comparaison des résultats fournis par l'intradermo-réaction à la syphiline et par la séro-réaction de Wassermann, Bull. et mém. Soc. méd. d. hôp. de Paris, 1910, xxvii, 440.

27. Fuerstenberg, A., and Trebing, J.: Die Luesreaktion in ihren Beziehungen zur antitryptischen Kraft des menschlichen Blutes, Berl. klin. Wchnschr., 1909, xli, 1357.

28. Achard, C., Benard, H., and Gagneux, C.: Leuco-Diagnostic de la Syphilis, Compt. rend. Soc. de biol., 1910, lxxviii, 323.

29. Hamburger, J.: Ueber die Beeinflussung der Kobra-Gift-Hämolyse durch Seren von Haut- und Geschlechtskrankheiten, Dermat. Ztschr., 1909, xvi, 785.

30. Weil, R.: The Resistance of Human Erythrocytes to Cobra Venom, Jour. Infect. Dis., 1909, vi, 688; The Variation in the Resistance of Human Erythrocytes in Disease to Hemolysins, with Especial Reference to Syphilis, Proc. Soc. Exper. Biol. and Med., 1910, vii, 2.

found that syphilitic cells resist a solution of 1 to 1,800; that is, twice as strong as that which destroys the control. The reaction was found to be marked in 90 per cent. of the cases of syphilis, the percentage of positive reactions being smaller in tabes than in paresis. In several non-syphilitic affections in which the Wassermann test was positive (three cases of scarlatina, two cases of polycythemia and one case of scleroderma) the Weil test showed a negative reaction. Some advantages which Weil claims for his test are that it can be used in cases of jaundice. It is positive for some time after mercurial treatment has abolished the Wassermann reaction. It is finally positive in a very large percentage of old quiescent cases in which the Wassermann test is negative. Dr. Weil informs me in a personal communication that he considers his test too delicate for general use, as a very considerable amount of practice is required in order to interpret the results obtained.

The meiotagmin reaction suggested by Ascoli and used by him as a diagnostic procedure in typhoid fever has been applied by Izar³¹ to syphilis. The test is a physico-chemical reaction of immunity depending on a change in surface tension of the fluids employed. When the serum of a syphilitic is mixed with its corresponding antigen and placed in the thermostat for two hours there is a diminution in surface tension as shown by an increase in the number of drops of a measured amount of the fluids. According to Izar the test was found to be entirely specific. A positive reaction was obtained in twelve cases of syphilis, while all of the non-syphilitic cases gave negative results, including two cases of leprosy in which the Wassermann reaction had been positive.

WASSERMANN TEST AND ITS MODIFICATIONS

In reviewing the recent progress of the Wassermann reaction I should first like to discuss some of the more important and practical contributions that relate to the technic of the method. A simple means of obtaining the patient's blood for examination has been suggested by Muck.³² The superficial veins of the neck are compressed by Bier's method and the mucous membrane of the anterior portion of the septum is scratched with a small needle or knife. In about three minutes as much as 20 c.c. of blood can be readily secured. The bleeding stops on removal of the compression, or on introduction of a pledget of cotton into the nose. Another method of obtaining blood where a venepuncture is difficult or not desirable, as in infants, is suggested by Somani.³³ After scarifying the skin he applies a cupping apparatus with an outlet below attached to a test-tube to receive the blood, and a suction-pump attached in the center. To this and other cupping methods Mulzer makes the objection that the apparatus is difficult to sterilize and that unsightly scars are left which if the method were widely adopted and known to the laity might at times prove compromising.

Finkelstein³⁴ has devised an apparatus for determining quantitatively the strength of a positive reaction. He uses a glass funnel (of a shape to fit a centrifuge), at the bottom of which a graduated tube is fused. The

undissolved corpuscles of the case to be examined and of the known positive cases are poured into two separate funnels, which are then centrifugalized and the result mathematically read. A somewhat similar apparatus has been recently suggested by Heimann.³⁵

As yet no one has produced the much-desired artificial antigen which shall prove as reliable and specific as the various organ extracts now in use. The artificial antigen of Sachs and Rondoni has, however, been found in the hands of Eisenberg and Nitsch³⁶ to be the equal of organ extracts, while unfavorable results in its use were obtained by Isabolinsky.³⁷ An artificial antigen has been suggested by Schürmann³⁸ which, in addition to lecithin, contains glycerophosphate of sodium and ammonium vanadate. This has been tested by Rajchman and Zygmunt³⁹ with disappointing results. They conclude that artificially prepared antigens are not reliable substitutes for alcoholic organ extracts, as in weak doses they often fail to give positive reactions with syphilitic serums and in stronger doses give a positive reaction with normal serums.

It was recently pointed out by Wechselmann⁴⁰ that the failure to obtain higher percentages by positive reactions in cases of undoubted syphilis might be due to interference from the presence of complementoids. By removing these disturbing bodies, by shaking the serum with barium sulphate, better results were obtained than with the regular Wassermann method. This procedure has been tried by Lange⁴¹ with strikingly good results in a series of 800 cases, in which both methods were simultaneously performed. In 551 syphilitic serums the Wechselmann test yielded 85 per cent. of positive reactions, as against 77 per cent. for the Wassermann method. In non-syphilitic control cases the Wechselmann test gave only negative reactions. Shaking the serum with barium sulphate not only adds to the delicacy of the test, but also destroys the complement, making it unnecessary to inactivate the patient's serum by heating to 56 C. for a half hour. Lange, therefore, at the present time uses the barium sulphate treatment of the serum as a substitute for inactivation by heat.

In order that positive and negative control serums may always be at hand Hecht⁴² recommended that they be preserved by means of drying. Small amounts, such as 0.5 c.c., are dried in watch crystals. When the serum is needed it is dissolved in an equal amount of salt solution, after which equal amounts of distilled water are added. The combination of salt solution and water is advised, as when distilled water is added to the dried serum certain substances (possibly globulins) remain undissolved and float about in the mixture as cloudy masses.

35. Heimann, W. J.: A Method for the Mathematical Reading of the Original Wassermann Reaction, *THE JOURNAL A. M. A.*, May 21, 1910, p. 1684.

36. Eisenberg, R. and Nitsch, R.: Ueber Wassermannsche Reaktion mit künstlicher Antigen, *Przegląd Lekarski*, 1909, No. 32. (Reviewed in *Monatsh. f. prakt. Dermat.*, 1909, I, 131.)

37. Isabolinsky, M.: Weitere Untersuchungen zur Theorie und Praxis der Serodiagnostik bei Syphilis, *Ztschr. f. Immunitätsforsch.*, 1909, III, 143.

38. Schürmann, W.: Ein künstlicher Extrakt zur Anstellung der Luesreaktion, *Med. Klin.*, 1909, v. 627.

39. Rajchman, L. and Zygmunt, S.: Praktische Bemerkungen zu der Frage der Wassermannschen Reaktion, *Przegląd Lekarski*, 1909, No. 25. (Reviewed in *Monatsh. f. prakt. Dermat.*, 1909, I, 138.)

40. Wechselmann: Ueber Verschleierung der Wassermannschen Reaktion durch Complementoidverstopfung, *Ztschr. f. Immunitätsforsch.*, 1909, III, 525.

41. Lange, C.: Ergebnisse der Wassermannschen Reaktion bei Vorbehandlung der Sera mit Baryumsulfat nach Wechselmann, *Deutsch. med. Wchnschr.*, 1910, xxxv, 217.

42. Hecht, H.: Zur Technik der Seroreaktion bei Syphilis, *Ztschr. f. Immunitätsforsch.*, 1910, v, 572.

31. Izar, G.: Ueber eine spezifische Eigenschaft luetischer Blutsera, *München. med. Wchnschr.*, 1910, lvii, 182.

32. Muck, O.: Die Schleimhaut der Nasensecheidewand eine besonders geeignete Stelle für die Blutentnahme zu der Wassermannschen Reaktion und zu anderen serologischen Untersuchungszwecken, *München. med. Wchnschr.*, 1909, lvi, 2321.

33. Somani, B. P.: Quantitative Bestimmung der luetischen Serumveränderung mittels der Reaktion von Wassermann, Neisser und Bruck, *Arch. f. Dermat. u. Syph.*, 1909, xvi, 73.

34. Finkelstein, J. A.: Zur Technik der Wassermannschen Reaktion, *Berl. klin. Wchnschr.*, 1909, xli, 1611.

According to Blanck and Friedmann⁴³ alcoholic extracts of syphilitic liver at times lose their usefulness for the Wassermann reaction by being kept in the ice-chest or in a cold solution. They found that in some cases this could be remedied by allowing the extract to remain in a thermostat for several days. To preserve their efficiency best it is advised to keep extracts in a warm room.

Further researches on the feasibility of using urine in place of serum for the Wassermann reaction have been made by Pollio.⁴⁴ His conclusions are similar to those of Höhne, that the use of the urine has no practical value, as too large a percentage of positive reactions are given in non-syphilitic cases. Even Blumenthal and Wile, who first experimented with urine, admitted that it was not quite as reliable as blood-serum for the Wassermann test. Bauer and Hirsch⁴⁵ conclude that in positive reactions obtained by using urine the inhibition of hemolysis is due to the globulin fraction of the urine. They obtained negative results in non-syphilitic urine containing albumin and in syphilitic urine containing no albumin, or albumin in small amounts.

In a discussion by Stern⁴⁶ of uncertain and paradoxical reactions that are so often obtained by every serologist, some of the rules are given that are at present followed in the laboratory of the Neisser clinic at Breslau. Every serum is tested both by the original Wassermann and by the Stern method; that is, in both active and inactive condition. When the results are not in accord the serums of the cases that are clinically doubtful are tested once or more times, using various extracts known to be reliable. The same procedure is followed in serums giving a partial inhibition of hemolysis and in serums of apparently healthy persons giving a positive reaction.

That the Wassermann reaction as originally performed is not absolutely satisfactory from either the theoretical or practical standpoint is apparent from the many attempts that have been made to improve and simplify the test. Of the different methods depending on the principle of complement-fixation there are eight which might be termed systems, which were published before June, 1909. The principles on which these different systems are constructed are very plainly shown in a comparative table by Noguchi in his book on serum diagnosis.

Since last June another "system" has been added to the list by Foix,⁴⁷ who suggests the use of rabbit's blood for the indicator in place of sheep's blood. During the past year the modifications⁴⁸ of Bauer, Tschernogubow (second method), and more especially those of Hecht and Stern, have been the subject of a good deal of

investigation in Europe, while the method of Noguchi has received especial attention in America. The final word is yet to be pronounced on these various modifications, as there is not yet an absolute opinion as to their value.

Very favorable results with the Hecht test are reported by König,⁴⁹ who finds it superior to both the original method and that of Margarete Stern. In a more recent communication on the method of Hecht, the same writer⁵⁰ concludes that it fulfils all the requirements of any modification, which are that: 1. It must have a scientific basis. 2. It must be simpler and more delicate than the original method. 3. It should never give erroneous results. Demanche and Ménard⁵¹ conclude that the results of the Hecht test are practically as reliable as those of the original method. Scholtz⁵² speaks of the test as simple and reliable. From his experience with 500 cases performed simultaneously with the Wassermann test, Werther⁵³ considers the Hecht method preferable, as it gives less often an incomplete inhibition; e. g., doubtful results. Favorable expressions of opinion on this method are also given by Stanculéanu and Liebreich⁵⁴ and by Sabrazes and Eckenstein.⁵⁵ Unsatisfactory results with the Hecht and with the Bauer test are reported by Hügel and Reute,⁵⁶ while both of these methods, as well as those of Stern and Tschernogubow, are condemned by Isabolinsky as giving less certain results than the Wassermann test.

The modification of the Hecht test, still further simplified by Fleming by the use of very small amounts of the ingredients, is condemned on the one hand by Bassett-Smith⁵⁷ and recommended on the other hand by Clemenger.⁵⁸ The former found that hemolysis failed to occur in 30 per cent. of his cases, whereas the latter found only 5 per cent. of failures.

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53. Werther: Ueber das Wesen und den Wert der Wassermannschen Reaktion und 500 eigene Untersuchungen mit der Hechtschen Modifikation, *Monatsh. f. prakt. Dermat.*, 1910, l, 147.

54. Stanculéanu, G., and Liebreich, N. E.: Die Anwendung der Methode von Bauer-Hecht für die Serumdiagnose bei Augenerkrankungen, *Revista stîntzelor Med.*, 1909.

55. Sabrazès, J., and Eckenstein, K.: Note on a Simple Method of Fixation of the Complement in Syphilis, *Lancet, London*, 1910, cixxviii, 233.

56. Hügel and Reute: Bisherige Erfahrungen nostik der Syphilis an der dermatologischen Strassburg, *München. med. Wchnschr.*, 1910, lvi, 79.

57. Bassett-Smith, P. W.: The Diagnosis of Syphilis by Some Laboratory Methods, *Brit. Med. Jour.*, 1909, ii, 377.

58. Clemenger, F. J.: The Syphilis by Some Laboratory Methods, *Brit. Med. Jour.*

59. Stühmer, A.: Ueber die von Tschernogubow angegebene Modifikation der Wassermannschen Reaktion, *Deutsch. med. Wchnschr.*, 1909, xxxv, 1517.

60. Guth, H.: Ueber eine (II) von Tschernogubow angegebene Modifikation der Wassermannschen Reaktion, *Deutsch. med. Wchnschr.*, 1909, xxxv, 2319.

43. Blanck and Friedmann: Ueber thermoreversible Zustandänderungen der bei der Wassermannschen Reaktion verwendete alkoholischen Leberextrakte, *Ztschr. f. Immunitätsforsch.*, 1909, iii, 108.

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45. Bauer, R., and Hirsch, A.: Beitrag zum Wesen der Wassermannschen Reaktion, *Wien klin. Wchnschr.*, 1910, xxiii, 6.

46. Stern, M.: Ueber die Bewertung der unsicheren und "paradoxen" Reaktion bei der serodiagnostischen Untersuchung der Syphilis, *Ztschr. f. Immunitätsforsch.*, 1910, v, 201.

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In reviewing the results obtained with the Stern modification we again find conflicting reports. An unfavorable opinion is given by Kleinschmidt,⁶¹ who thinks that the use of this procedure may lead to errors in diagnosis. In a comparative examination of 200 cases discrepancies were found to the advantage of the Wassermann method in twenty-five cases. In 5 per cent. of the cases there was not sufficient complement to complete the hemolysis. Jacobsen and Bachmann⁶² consider the modification of Bauer and Stern unreliable, as they give too many positive reactions in non-syphilitic cases. As treated cases of syphilis generally show an increased amount of amboceptor and complement, they suggest that a positive Bauer reaction (depending on natural amboceptor) or a positive Stern (depending on natural complement) might be considered as giving an unfavorable prognosis and indicating prolonged treatment. Schlimpert⁶³ and Meirowsky⁶⁴ warmly recommend the Stern modification, though both of these writers urge that it be performed simultaneously with the original Wassermann method.

NOGUCHI TEST

From this cursory review of the modifications that have been tested with considerable thoroughness abroad it is easy to see that no one method has succeeded in replacing the original procedure of Wassermann. It is unfortunate that the system of Noguchi has not as yet been more seriously considered by our foreign colleagues. In the recent book on serum diagnosis by Gastou and Giraud⁶⁵ the method is described at some length, although it has been practically performed only in a few cases. Among those of us in America who have had experience with the Noguchi method there is little doubt as to its very great value. The principles of the test, as well as minute instructions for preparing the reagents, are so plainly described in Noguchi's book that it seems strange that the method has not at least been given a trial in some of the foreign laboratories. In a recent contribution Noguchi⁶⁶ has tabulated the work of different American investigators who have experimented with his method, and it may be said that the results speak for themselves. The test has now been tried in over 8,500 cases, many of these in comparison with the regular Wassermann test. Kaplan, who formerly reported 8 per cent. positive reactions in non-syphilitic cases, states that during the past five months no such non-specific reactions have occurred. To meet the objections of Swift, who found thirty-five positive reactions in 201 non-syphilitic cases, Noguchi recently gave a public demonstration of his test at the clinic of the Pennsylvania Hospital. The serums of fifty-nine patients were simultaneously examined by Dr. Noguchi with his method, and by Dr. Swift, using the original technic of Wassermann. The results were absolutely identical.

SPECIFICITY OF WASSERMANN REACTION

The question of the specificity of the Wassermann reaction finally appears to be nearing a solution. The

list of non-syphilitic diseases in which a positive reaction can be obtained more or less often is becoming more definitely settled. To this list, which includes leprosy, frambesia, sleeping-sickness, scarlatina, and malaria, must now be added, apparently, lupus erythematosus acutus. Fortunately these conditions do not often present any difficulty in being clinically differentiated from syphilis.

Several communications on the Wassermann reaction in leprosy have recently appeared in which the number of patients examined was fairly large. While agreeing that leprosy in general often gives a positive reaction, they do not agree as to the type of the disease in which the reaction is found. Thus Ehlers and Bourret,⁶⁶ in forty-seven cases of nodular and anesthetic types, found positive reactions in all except two cases. On the other hand, Eliasberg,⁶⁷ in fifty cases, found a much higher proportion of positive reactions in the nodular than in the anesthetic type. My own results⁶⁸ in an examination of sixty patients agree closely with those of Eliasberg, the latter obtaining only three reactions in nineteen anesthetic cases, while I found three reactions in twenty-two cases of this type.

Teissier and Bénard⁶⁹ in 100 cases of scarlatina found the reaction partially or completely positive in 84 per cent. of the cases. The reaction appeared at times as early as the third day and invariably disappeared at the end of convalescence. Using extract of human heart as antigen, Nanu-Muscel and Titu⁷⁰ obtained only negative reactions in 12 cases of malaria. In 8 cases the examination was made at the height of the paroxysm when the blood showed the presence of the plasmodium. According to Boehm⁷¹ a positive reaction can be obtained in malaria only when the parasites are present in the blood.

In a case of that very rare condition, lupus erythematosus acutus, Reinhart⁷² obtained a positive Wassermann reaction on two different occasions. After the patient's death a positive reaction was obtained from the blood. The autopsy showed no evidence whatever of syphilis. A second case of this disease is reported by Hauck⁷³ in which on two occasions a positive reaction was found. In this case the patient survived and failed to show the reaction after the acute symptoms had subsided.

Interesting results are recorded by Wolfsohn⁷⁴ from an examination of 50 patients shortly after ether narcosis. A more or less strong positive reaction was found in 13 cases. Two of these patients were syphilitics, in whom the positive reaction persisted, while in the other cases the reaction disappeared in a few days. Wolfsohn concludes that in 22 per cent. of the cases a temporary positive reaction may be present as a result of ether narcosis. He considers his results

61. Kleinschmidt, H.: Ueber die Sternsche Modifikation der Wassermannschen Reaktion, *Ztschr. f. Immunitätsforsch.*, 1909, iii, 512.

62. Jacobsen, H. C. and Bachmann, E. L.: Sur les différentes modifications de la réaction de Wassermann, *Compt. rend. Soc. de biol.*, 1909, lxxvii, 449.

63. Schlimpert, H.: Beobachtungen bei der Wassermannschen Reaktion, *Deutsch. med. Wchnschr.*, 1909, xxxv, 1368.

64. Meirowsky, E.: Ueber die von M. Stern vorgeschlagene Modifikation der Wassermann-Neisser-Bruckschen Methode, *Berl. klin. Wchnschr.*, 1909, xlii, 1310.

65. Noguchi, H.: Further Studies on the Serum Diagnosis of Syphilis with Especial Reference to the Antihuman Hemolytic System, *Internat. Clin.*, 1910, Series 20, i, 22.

66. Ehlers and Bourret: Wassermann-Reaktion ved Spedalsked. Ugesk. f. Laeger., 1909, No. 49. (Reviewed in *Ztschr. f. Immunitätsforsch.*, 1909, Ref. ii, 1007.)

67. Eliasberg, J.: Komplementablenkung bei Lepra mit syphilitischem Antigen, *Deutsch. med. Wchnschr.*, 1909, xxxv, 1922.

68. Fox, H.: The Wassermann and Noguchi Complement-Fixation Test in Leprosy, *Am. Jour. Med. Sc.*, 1910, cxxxix, 725.

69. Teissier, P. and Bénard, R.: Recherches sur la réaction de Wassermann dans la scarlatine, *Compt. rend. Soc. de biol.*, 1910, lxxviii, 272.

70. Nanu-Muscel, J. and Titu, V.: La réaction de Wassermann dans la malaria, *Compt. rend. Soc. de biol.*, 1910, lxxviii, 188.

71. Boehm, W.: Malaria und Wassermannsche Reaktion, *Malaria*, 1909, i, 191.

72. Reinhart, A.: Erfahrungen mit der Wassermann-Neisser-Bruckschen Syphilisreaktion, *München. med. Wchnschr.*, lvi, 2092.

73. Hauck: Positiver Ausfall der Wassermann-Neisser-Bruckschen Syphilisreaktion bei Lupus erythematosus acutus, *München. med. Wchnschr.*, 1910, lvii, 17.

74. Wolfsohn, G.: Ueber Wassermannsche Reaktion und Narkose, *Deutsch. med. Wchnschr.*, 1910, xxxvi, 505.

According to Blanck and Friedmann⁴³ alcoholic extracts of syphilitic liver at times lose their usefulness for the Wassermann reaction by being kept in the ice-chest or in a cold solution. They found that in some cases this could be remedied by allowing the extract to remain in a thermostat for several days. To preserve their efficiency best it is advised to keep extracts in a warm room.

Further researches on the feasibility of using urine in place of serum for the Wassermann reaction have been made by Pollio.⁴⁴ His conclusions are similar to those of Höhne, that the use of the urine has no practical value, as too large a percentage of positive reactions are given in non-syphilitic cases. Even Blumenthal and Wile, who first experimented with urine, admitted that it was not quite as reliable as blood-serum for the Wassermann test. Bauer and Hirsch⁴⁵ conclude that in positive reactions obtained by using urine the inhibition of hemolysis is due to the globulin fraction of the urine. They obtained negative results in non-syphilitic urine containing albumin and in syphilitic urine containing no albumin, or albumin in small amounts.

In a discussion by Stern⁴⁶ of uncertain and paradoxical reactions that are so often obtained by every serologist, some of the rules are given that are at present followed in the laboratory of the Neisser clinic at Breslau. Every serum is tested both by the original Wassermann and by the Stern method; that is, in both active and inactive condition. When the results are not in accord the serums of the cases that are clinically doubtful are tested once or more times, using various extracts known to be reliable. The same procedure is followed in serums giving a partial inhibition of hemolysis and in serums of apparently healthy persons giving a positive reaction.

That the Wassermann reaction as originally performed is not absolutely satisfactory from either the theoretical or practical standpoint is apparent from the many attempts that have been made to improve and simplify the test. Of the different methods depending on the principle of complement-fixation there are eight which might be termed systems, which were published before June, 1909. The principles on which these different systems are constructed are very plainly shown in a comparative table by Noguchi in his book on serum diagnosis.

Since last June another "system" has been added to the list by Foix,⁴⁷ who suggests the use of rabbit's blood for the indicator in place of sheep's blood. During the past year the modifications⁴⁸ of Bauer, Tschernogubow (second method), and more especially those of Hecht and Stern, have been the subject of a good deal of

investigation in Europe, while the method of Noguchi has received especial attention in America. The final word is yet to be pronounced on these various modifications, as there is not yet an absolute opinion as to their value.

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56. Hügel and Reute: Bisherige Erfahrungen über die Serodiagnostik der Syphilis an der dermatologischen Universitätsklinik zu Strassburg, *München. med. Wchnschr.*, 1910, lvi, 79.

57. Bassett-Smith, P. W.: The Diagnosis of Syphilis by Some Laboratory Methods, *Brit. Med. Jour.*, 1909, ii, 377.

58. Clemenger, F. J.: The Diagnosis of Syphilis by Some Laboratory Methods, *Brit. Med. Jour.*, 1909, ii, 575.

59. Stühmer, A.: Ueber die von Tschernogubow angegebene Modifikation der Wassermannschen Reaktion, *Deutsch. med. Wchnschr.*, 1909, xxxv, 1517.

60. Guth, H.: Ueber eine (ii) von Tschernogubow angegebene Modifikation der Wassermannschen Reaktion, *Deutsch. med. Wchnschr.*, 1909, xxxv, 2319.

such findings might be explained on theoretical grounds in three ways. In the first place, the mothers might have been victims of latent syphilis. In the second place, the mothers might have been healthy, the positive reaction being due to inhibitory substances that had been produced in the child and passed through the dividing wall of the placenta into the mother's circulation. In the third place, the mothers might have been immune to syphilis, assuming that the inhibitory substances represent immune bodies produced in either fetal or maternal organism and circulating in the mother's blood. To settle the question Baisch combined the serologic examination of the mother and child with examinations for the *Spirochæta pallida* in the placenta. He found in these clinically healthy women, giving a positive Wassermann reaction, that the spirochetes could be found in both fetal and maternal portions of the placenta as well as in the maternal circulation, apparently proving the first possibility, namely, that the mothers were the bearers of latent syphilis.

Speaking further for this explanation and against the possibility of the reaction being due to inhibitory bodies passing from the child to the mother, is the fact that the positive reaction in the mother does not disappear after the birth of the child. Furthermore, the reaction can be positive in the mother and negative in the child. Bruck has pointed out that a number of cases have been reported in which a syphilitic child gave a negative reaction at birth, and later when manifestations appeared the reaction became positive. In spite of this the mother at the time of the birth gave a positive reaction. In these cases a passage of the inhibitory bodies from child to mother was certainly impossible. The most difficult cases to explain would be the ones in which the mothers, in addition to being clinically healthy, gave a negative reaction while their offspring were shown to be undoubtedly syphilitic from demonstration of the presence of the spirochetes. It might be thought that in these cases we had to deal with pure paternal heredity, or the explanation might be found in the failure of the Wassermann test to show a positive reaction. The proof that the explanation lay in the failure of the test was apparent from the fact that in the negative as in the positively reacting mothers, spirochetes were found in both portions of the placenta and in the maternal circulation.

Not only may our ideas concerning Colles' law have to be revised, but also those concerning the law of Profeta, which says that apparently healthy children of syphilitic parents are immune to syphilis, at least up to the time of puberty. The presence of a positive Wassermann reaction in a large number of these supposedly healthy children goes far to prove that here again the immunity to syphilis is only apparent.

That not only hereditarily syphilitic infants but also older children suffering from hereditary syphilis give a higher proportion of positive reactions has been shown by Bertin and Gayet.⁹⁴ In examining 25 undoubted cases of hereditary syphilis they found positive reactions in all but one case. Knoepfelmacher and Lehn-dorff⁹⁵ also conclude that older heredo-syphilitic children give a positive Wassermann reaction more often than adults in the late stage of acquired syphilis.

In conclusion it would seem that there has been some very substantial progress during the past year in the

serum diagnosis of syphilis. The continued investigations on the Wassermann test have not only added much that is new to our knowledge, but have tended to confirm the view that the reaction is one of very great practical value. The results obtained in a number of other diagnostic tests for syphilis must at least be considered as encouraging.

SUMMARY

1. The various precipitation tests for the diagnosis of syphilis are too unreliable to be of much practical value.

2. The Schürmann color reaction has been extensively tried and found to be worthless.

3. The favorable results that have been claimed for the intradermic reaction are at least encouraging, as the performance of the test seems to be simple.

4. Excellent results have been claimed by Richard Weil for his cobra venom test. They are, however, somewhat lessened in value by the fact that very considerable experience is required to perform the reaction.

5. Further investigations are required to show whether the leuko-diagnosis, the antitryptic index or the meio-stagmin reaction can be used as diagnostic aids in syphilis. The results obtained with the Much-Holzmann reaction appear to be of no value.

6. The artificial antigens of Sachs and Rondoni, and of Schürmann for the Wassermann reaction have not succeeded in replacing the use of organ extracts.

7. The use of barium sulphate suggested by Wechselmann to remove the disturbing complementoids from the patient's serum has apparently given a greater proportion of positive reactions than those obtained by the original Wassermann method.

8. The use of urine in place of serum for the Wassermann reaction is not to be recommended.

9. No single modification has as yet entirely replaced the original Wassermann method. The modifications of Hecht and of Stern have apparently given good results abroad, while the Noguchi test has received almost universal recognition in America. The methods of Bauer and of Tschernogubow (second test) appear to be of much less value.

10. To the list of non-syphilitic diseases which at times give a positive Wassermann reaction, must apparently be added lupus erythematosus acutus. It has also been found that many cases give a positive reaction following ether narcosis.

11. The diagnostic value of a positive reaction is generally recognized. There is no general agreement as yet regarding the value of the test as a guide for treatment.

12. From recent serologic investigations it would appear that syphilis plays a very important rôle in the etiology of aortic insufficiency. Syphilis is probably of more importance in the causation of nerve-deafness than has been previously supposed. There is apparently little or no relation between syphilis and ozena.

13. A new field seems to have been opened by the Wassermann reaction for the discussion of the problem of the inheritance of syphilis and of the interpretation of the laws of Colles and Profeta.

14. In the field of pathologic-anatomic diagnosis the Wassermann reaction seems to be of considerable value.

15. Serologic examinations have shown that the percentage of syphilitic infections in prostitutes is extremely high.

94. Bertin and Gayet: Syphilis héréditaire et réaction de Wassermann, *Rev. de méd.*, 1910, xxx, 395.

95. Knoepfelmacher, W., and Lehdorff, H.: Untersuchungen hereditärischer Kinder mittels der Wassermannschen Reaktion, *Das Gesetz von Profeta*, Wien. med. Wchnschr., 1909, lxx, 2230.

PELLAGRA *

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While engaged in the study of 130 cases of amebiasis (amebic dysentery) during portions of 1907, 1908 and 1909, at the Marine Hospital in San Francisco, it was noted that the majority of the patients showed symptoms of secondary complications. Some complained of rheumatic pains and neuralgias; others complained of headache and indigestion and became constipated at times; others showed lesions on the hands, feet and legs which were thought to be trophic in character and which were usually in the form of dryness of the skin, or in the form of small pinhead-sized vesicles, which tended to coalesce and later to form bullæ. There was also more or less marked interference with the mobility of the various joints and of the spine.

In searching for the cause of these symptoms the x-ray demonstrated that the rheumatic pains, neuralgias, etc., were apparently caused by the presence of some sort of deposit on the articular surfaces of the vertebræ, which so encroached on the foramina giving exit to the nerves, particularly at the posterior portion, as to produce mechanical pressure on the nerves at their exit. The headache, constipation and indigestion seemed to be due to injury to the intestinal mucous membrane by the amebas. Microscopic examination of the feces constantly showed muscle-fibers, starch, vegetable cells and fibers, ammonium and magnesium phosphate crystals, fatty acid crystals, oxalate of calcium crystals, cholesterol plates, mucus, pus, blood, blood pigment, soaps and fats, amebas, monads and frequently eggs of other parasites, as hookworm, roundworm, whipworm and, at times, the hyphæ and sporangia of molds. The trophic lesions were thought to be due to the mechanical pressure on the nerves, which had been so long continued as to interfere with their functions; the loss of motion in the spine and the joints to the pressure of the deposits, above mentioned, which could be seen in the x-ray plates. On examining my first pellagra patient, last November in Columbia, I was much struck by the resemblance pellagra had to the cases of amebiasis above mentioned. After reading all the literature on pellagra that I could, and from talking with Lavinder and others who had had experience with pellagra, the following working hypothesis was formulated, and the studies carried out in Columbia, S. C., were directed toward proving or disproving the various parts of the hypothesis.

WORKING HYPOTHESIS REGARDING THE NATURE OF THE DISEASE

The hypothesis is as follows: Pellagra is a disease resulting from an injury to the intestinal mucous membrane, produced by the ameba. As a result of the ulceration there is an inflammatory process extending throughout the alimentary tract which interferes with the absorptive power of the intestine and the manufacture of the digestive ferments normally produced in the intestines. Later, owing to long-continued inflammation in the intestine, the pancreas and liver undergo inflammatory change which interferes with the quality and quantity of the digestive juices that they produce, with the result that the food ingested is improperly

digested. The presence in the intestine of undigested food favors fermentation and putrefaction of its elements, with the production of certain toxins, ptomains and intermediate products of digestion which are harmful to the body.

As it has been shown by Herter that the *Bacillus aerogenes capsulatus* is present in the intestines of carnivora, and readily ferments proteid matter, it was decided to look for it as one of the possible causes of the fermentation. The fermentation of the carbohydrates could be accounted for by the colon bacillus.

The insanity of pellagra was assumed to be due to the severe and long-continued toxemia. The lesions on the hands, neck, feet, face and genitalia were assumed to be due to two factors: first, the mechanical pressure on the nerves at their exit from the spinal canal, and second, the degeneration of the nerves themselves as a result of the toxemia. The degeneration of the cord was assumed to be due to the long-continued mechanical pressure on the posterior roots of the spinal nerves, which would tend to have the same effect as section of the nerve.

It was assumed that the seasonal recurrence of the disease was due to the extremes of atmospheric temperature which exist during the so-called pellagra season, namely, March, April and May, and September, October and November. This assumption was not formulated until I had been in Columbia some time and had noted the changes myself.

INVESTIGATION OF HYPOTHESIS

An outline of the work done along the above lines will now be given: Examination of the stools of fifty-two of the patients showed amebas constantly present in the stools of fifty. In the two cases in which amebas were not found the stools were not satisfactory, in that they were not sufficiently liquid, and other specimens could not be obtained. Ulceration and damage to the intestine was shown, in all stools examined, by the presence of mucus, pus, blood pigment and blood.

That the liver and pancreas were damaged was shown at autopsy by the fact that both of these organs revealed cirrhotic changes, the pancreas especially being so hard as to be almost leathery in consistence; this was also evidenced by the presence of muscle fibers, vegetable cells and fibers, starch, soaps and fats in the stools. The latter observation, in addition to the fact that a damaged and ulcerated intestine cannot absorb as well as a normal one, might also be accepted as partial evidence as to faulty absorptive power on the part of the intestine.

Fermentation and putrefaction were shown by the presence of crystals in quantity in the stools, by the odor, by the fact that the stools were frequently fermenting and giving off bubbles of gas in the paper cups in which they were brought to the laboratory. The stools were invariably acid in reaction, frequently requiring as much as 5 to 10 c.c. of a 1/10 normal solution of sodium hydroxid to produce a reaction with phenolphthalein in 25 to 30 c.c. of stool. Van Noorden states in effect, in his work on "Metabolism and Nutrition," that acid fermentations, in that they withdraw bases from the blood to form compounds with the acids produced, diminish the alkalinity of the blood, and produce serious results.

The *Bacillus aerogenes capsulatus* was found in one case, according to the method of Welch, by injecting fecal matter into the ear vein of a rabbit, after a few minutes killing the rabbit, and allowing it to remain on the top of the incubator till the following day, when it

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

was seen that the body was swollen with an inflammable gas, the organs were much decomposed, and the tissues generally were edematous.

In one case which had been under treatment until the stool was neutral in reaction, and in which crystals and the other signs of fermentation and putrefaction could not be found, the *Bacillus aerogenes capsulatus* could not be recovered. On account of the limited time and the difficulty of obtaining animals more experiments of this kind could not be made.

As regards the cause of the insanity, nothing definite was worked out, but it was noted that sudden changes in the atmospheric temperature made the cases much more toxic, and whereas the patients may have been fairly sane, they would become excited and would frequently have to be placed under restraint. This applied not only to the pellagrins, but to other patients in the asylum as well. This I cannot satisfactorily explain, unless it be due to the alternating warming and chilling of the surface of the body, causing the blood to leave the surface capillaries and producing an engorgement of the vessels of the intestines, and by so doing increasing the activity of the processes at work therein.

As to the lesions on various parts of the body, in every case of pellagra in which radiographs were made the plates showed deposits in the spinal foramina which apparently produced pressure on the nerves. As to the part played by toxic degeneration of the nerves themselves, I can only repeat what I was told by Dr. Achucaro of the Government Hospital for the Insane, Washington, D. C., that experiments show that when various tissues, such as nerve, muscle and fat, are allowed to decompose, the nerve, being the most highly specialized of all the tissues, shows evidences of degeneration first.

It is possible that several factors may be concerned in the seasonal recurrence of the disease: First, renewed activity and new infections with amebas in the spring of the year; second, engorgement of the intestines due to chilling of the body surface; third, the growth of molds in food products, with resulting changes in these products, which could favor fermentation in a person already debilitated.

As to the degeneration of the posterolateral columns of the spinal cord, Marie made the observation that the degeneration began in the posterior roots of the spinal nerves; the radiographs show that the pressure does come on the posterior roots of these nerves, at about the site of the ganglion. Further, at the only autopsy I could obtain, it was noticed that the foramina were so filled with what seemed to be a firm cartilage-like deposit that the nerves were wedged therein, and a large-sized sewing-needle or a Japanese toothpick could not be pushed through the foramina. The spinal canal was also partially filled.

In Gray's "Anatomy" the following statements are made:

The roots of the cervical nerves increase in size from the first to the fifth and then remain the same size to the eighth. The posterior bear a proportion to the anterior as 3 to 1, which is much greater than in any other region.

It may be seen from the skeleton and the radiographs that the foramina in the cervical region decrease in size from above downwards, whereas as above stated, the nerves increase. These facts would seem to account for the lesions on the hands (fifth, sixth, seventh, eighth cervical and first dorsal), face and neck (third and fourth cervical).

With reference to the dorsal nerves Gray says, "The roots of the dorsal nerves are of small size, and vary but slightly from the second to the last." Examination of the skeleton shows these foramina to be larger than the lower cervical, and therefore there are no lesions on the parts innervated by the dorsal nerves.

The lesions on the legs and feet are due to pressure on the first and second sacral nerves, of which Gray says, "The roots of the upper sacral nerves are the largest of all the spinal nerves; while those of the lowest sacral and coccygeal nerves are the smallest." The foramina are larger than the other intervertebral foramina but are more tortuous, and as the spinal canal in the sacrum is incomplete posteriorly and flattened, it is possible that any deposit here will produce pressure symptoms as in the other vertebrae.

TREATMENT

The amebiasis was treated by enemas of quinin bisulphate in normal salt solution. After a preliminary purge, the patient was put on a diet of milk, toast, rice and starchy foods. To aid the pancreas, pancreatin was administered in capsules coated with phenylsalicylate, in order that the hydrochloric acid of the stomach could not act on and destroy the pancreatin. To assist the pancreatin and neutralize the acidity present in the intestine, sodium bicarbonate was given, also in capsules coated with phenylsalicylate. To prevent accumulations of food and resulting fermentations, small doses of salts were given often enough to cause one or two bowel movements per day, not counting the results of the enema as a movement. The deposits were treated by inunctions of mercury and the internal administration of iodid of potassium, both pushed to the therapeutic limit. Rest in bed was ordered till the acute symptoms had subsided.

In all, twenty-five patients were treated, with the following results: Three died; of these, two died of chronic amebic dysentery, the pellagra lesions having practically disappeared; the other, just prior to death, was having from eighteen to twenty stools per day, and the pellagra lesions had improved, until the week before death, when secondary infections began in the lesions, and they became purulent. Twelve patients improved in varying degrees, both mentally and physically. Since these were insane negroes and no cooperation could be received from the patients themselves, it was surprising that they improved at all. Six others also were improved, the last time I saw them, and, in accordance with information just received, they are continuing to improve. Four recovered, and all symptoms of pellagra had disappeared, except a slight increase in the patellar reflexes.

While many of the studies seem more or less suggestive, and while the percentage of improved and recovered seems encouraging, I feel that, in accordance with accepted medical standards, no conclusions can be drawn as yet, and that much longer and more detailed studies will be needed to prove or disprove the value of the researches just outlined.

In conclusion, I wish to acknowledge my indebtedness to Dr. J. W. Babcock, of the State Asylum at Columbia, for his kindnesses, assistance and many courtesies. I also wish to thank Dr. R. W. Gibbes, of Columbia, for the excellent radiographs he has taken, and the members of the asylum staff and the physicians of Columbia for permission to study their cases.

Since completing my studies in Columbia, I have seen nine positive and sixteen suspicious cases in the Philadelphia Hospital for the Insane. Of twelve specimens of stools examined from these cases, all showed amebas.

THE FARM; THE NEXT POINT OF ATTACK IN SANITARY PROGRESS *

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The careful student of sanitary progress in the United States to-day is early impressed with the great contrast between the sanitary conditions in country districts and those in the cities. Recent years have witnessed great progress in the cities. Effective health departments have been organized, and the effect of measures such as the supervision of water and milk-supplies, the visiting nurse and the tuberculosis dispensary, medical inspection of schools and the accurate control of contagious diseases has been so pronounced as to place their work on a firm basis, and to insure its continuance and extension. While much remains to be done in the cities, the foundation has been laid and the methods of work more or less standardized. It is not too much to say that we are within sight of the solution of many of the problems of municipal sanitation.

While these facts are true of the cities, in those states with which we are familiar no such condition exists in the country districts. They remain as they have been for years, without efficient organization, depending on the methods and beliefs of thirty years ago. In only a few states is there adequate supervision of the rural communities; only a few states require the reporting of even the most dangerous of contagious diseases, and in most cases what activity there is in the country districts is confined to the control of smallpox, diphtheria and scarlet fever, with occasional attention to a flagrant nuisance. The vast contributions of modern science to the prevention of disease are for the most part lost to the people of the country for the lack of organization and education. There are, of course, isolated exceptions to this statement, such for instance as the wonderful work of the Pennsylvania Department of Health in connection with tuberculosis in rural districts, but for the most part conditions are as stated.

The reasons for this contrast are, in the main, perfectly obvious. There is in the first place a greater survival of the individualistic idea of life in the country than in the city. Government touches the life of the individual in the country to a limited degree only. His personal liberty, so called, is seldom invaded. He is, and he considers himself to be, a law unto himself. In the city the communal idea prevails; no man lives unto himself alone; government is at the elbow of every citizen. In the second place, the very isolation of the country makes it almost impossible in the circumstances to educate the country people in the importance of health measures. A single successful campaign against measles or diphtheria or impure milk will generally convince the people of the city of the importance of health measures. As such a campaign is difficult or impossible under present conditions in the country, education comes more slowly and the support of health measures is always more doubtful. In the third place, the contrast between country and city is largely due to the fact that health measures are more obviously necessary in the city than in the country. The crowded city demands health protection. Where our nearest neighbor lives half a mile away he may suffer from a wide variety of diseases and we may never feel the danger, but

where we are separated from contagious disease only by the partition wall of an apartment house, we feel the necessity for and yield more readily to preventive measures.

The explanation for this contrast, however, is not its justification. The country, no less than the city, needs health education. The country, even more than the city, stands in need of fundamental health precautions. The very mass of disease in the country districts of itself requires that this problem be attacked, but the bearing of rural sanitation on the health of our cities is perhaps a still more immediate reason why our point of attack should be shifted. The health of the city depends in a large measure on the health of the country. Practically all the food-products of the city come from more or less remote country districts. A single case of typhoid fever on a dairy farm may, under certain conditions, infect a whole city, and emphasize to all the intimacy of the sanitary connection. In the same way, close intercourse between cities and the country renders the former particularly liable to infection from the latter. Our experience in Virginia, which is doubtless borne out by that of other states, has convinced us that the prevention of smallpox in the cities is very largely dependent on the close inspection of smallpox in the country, since most cases of this disease are brought into the cities from rural districts or small towns. Then, again, there is a crying need for better rural sanitation because of the more or less general residence of city people in the country during vacation time. We have found in Virginia that the country boarding-house is one of the great sources of our typhoid fever, and many of the cases which appear in the cities after vacation can be traced directly to the bad sanitation of country resorts. If, therefore, the health of the cities is to be improved, the health of the country must also be bettered. And if the nation is ever to stamp out disease, it must be by a general attack in both the city and the country.

In addition to the crying need for such work rural conditions offer to the scientific sanitarian the attraction of almost unparalleled opportunities for research work in the transmission of disease. In typhoid fever particularly, we in Virginia are firmly of opinion that the key to the eradication of our summer typhoid is to be found in the country. To trace the means of dissemination of typhoid bacilli in a city, with its manifold sources of food-supply, the complication of the milk-supply, with daily contact between thousands of persons any one of whom may be in the incubative stage of the disease or may be a typhoid carrier, and with the constant temptation to attribute the infection to the water-supply, is beset with so many difficulties as to make it almost hopeless. The best that can be done is to draw general conclusions from the study of large groups of cases, and even here it is difficult to exclude the general factors of flies, milk and water.

In the country, conditions are very different. Given a country district free from typhoid for several years, the first case is easily discovered, and the transmission of the disease may often be worked out with mathematical accuracy. Water and milk are, of course, easily excluded; flies may be considered with some accurate idea as to their importance as a factor in transmission; and the actual amount of contact resulting in infection may often be determined exactly. We have been able to do this in Virginia in a number of instances with results of the greatest interest. This work extended over a large area, and, combined with careful statistical

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

studies will throw more light on the city problem than can be obtained in the city itself by any means known at present.

Nor is typhoid the only disease which can be advantageously studied in the country. We have found the study of the transmission of smallpox in rural districts to be of great interest by reason of the fact that the time, place and manner of contact can be worked out with ease and certainty. Diphtheria and scarlet fever, studied case by case in rural districts, should throw great and much-needed light on the transmission of these diseases.

It may not be amiss at this point to call attention to the value of the case method of study of infectious diseases in rural work. A personal visit to each patient, the collection of the data needed at the place where the disease occurred, and the interpretation of the epidemiologic evidence in the light of the other information secured by a visit to the premises, offers by far the most promising method for the solution of the problems now pressing for solution.

The rural districts, however, offer even greater possibilities in practical prevention than as a field for studies in the transmission of disease. The separation of individual cases, the slowness and freedom from complication of the intercommunication, render health work in the country much easier than in cities. With trained men, and an adequate system for promptly collecting and studying morbidity statistics, preventive work in rural districts may be made to have the efficiency of a well-oiled machine.

Even here, however, it is obvious that all the phases of sanitation which arise in the study of rural conditions cannot be studied fully by the limited force at the disposal of the average state health department. Some limitations must be made and some problems in the country must receive more attention than others. In Virginia we have carefully considered the subject and have concluded that, for the present at least, typhoid fever and hookworm diseases should receive first attention. The reason for this decision will, I think, be obvious to all. Typhoid fever is and will probably remain the greatest single problem of rural hygiene. High as is the death-rate from typhoid fever in the country as a whole, it is highest in the South; and awful as is the toll which most Southern cities pay to this disease, their burden is not so heavy as that of the rural sections of the same territory. Hookworm has been placed beside typhoid fever in this work because we are convinced that hookworm plays a part hardly less important than that of typhoid fever in the South and is essentially a disease of the country.

If we must study rural hygiene for its own importance, and if we must limit our study for the present at least to these diseases which are the most disastrous, we must begin our study on the farm. We should not, of course, omit the small towns, as they offer problems intermediate between those of the city and those of the country. But a study of these towns convinces us that in the main the dangers are essentially those of the farm, and the problem is practically the same in its fundamental aspect as that to be encountered in the country.

The farm is the point of attack, and in the work against the diseases I have mentioned the farm is the unit both in the spread and prevention of infection. Each farm is, to all intents and purposes, a separate community, with its own population, its own problems of sanitation, and its own forces for good and evil. The work we would do for the improvement of rural con-

ditions of sanitation must be done for the improvement of the farm.

Studies of sanitary conditions on farms, such as those of Stiles, show facts that are almost unbelievable in the light of our knowledge regarding soil pollution. These studies have been confirmed by our work in Virginia. We have inspected in the course of our work against typhoid and hookworm diseases thousands of farms, and it is the exception rather than the rule that we find even the most primitive sanitary arrangements in use by the people. The privy, if existing at all, is old, in bad repair and of antiquated design. Its use is confined almost exclusively to the female members of the family, the males relying on still more primitive methods of disposal. The contents are open to the chickens, the hogs, the dogs and the flies, and these agencies are relied on to take care of the small amount of material actually deposited in them.

Water-supplies follow the same general tenor, the wells being usually carelessly dug, carelessly protected, if protected at all, and carelessly kept. The well tops, almost without exception, show wide cracks through which filth is washed at all times into the well; the buckets are handled by all kinds of hands and then carefully lowered into the well for the only cleaning they ever get. The personal habits of the average inhabitant of a rural district are of a character in keeping with the other sanitary conditions. The absence of running water, and particularly hot water, make effectual cleanliness, especially in cold weather, difficult, and the amount of water used per capita per day is exceedingly small.

It must, of course, be admitted that in every rural community there are those of sufficient intelligence, self-respect, and ability to rise above these conditions and to provide themselves with modern sanitary conveniences, but, particularly in regions where the economic standard of rural life is low, these exceptions are few, and for the most part conditions are as I have described them.

Even under these conditions, amazing as it may seem, there are many rural communities which are and have been for many years practically free from typhoid, despite the prevalence of the disease in this country. There are others in which hookworm has apparently never gained a foothold, but the introduction of a single case of typhoid under favorable conditions is sufficient to give rise to a wide-spread outbreak of the disease, and hookworm infection, though slower in its spread, is equally certain to infect the entire community under these conditions.

These conditions, then, fix the problem of the farm, if they do not solve it, and indicate the direction our work must take. The building of a proper privy with its habitual use by every member of the farm community, its regular and frequent cleaning and proper disposal of the material, the safeguarding of the water-supply, and the instruction of the people as to the necessity of obeying the Scriptural injunction to wash before meat, are not of themselves difficult, expensive or revolutionary procedures. Moreover, when we take into account the fact that the carrying out of these procedures will do much to secure the immunity of the inhabitants of the farm from soil-pollution disease, it does not seem that it would be difficult to secure their adoption. When we face the problem in Virginia, however, of putting these measures into effect on hundreds of thousands of farms, scattered over forty thousand square miles of territory, and containing a population of one and a half million, who live under a governmental system which promotes

or protozoan is very much lowered. This would increase the acidity due to bacterial growth.

We must remember also that one factor appears certain as a cause of pellagra, though there are more than one, probably several causative factors. I believe I can show, with some pictures I have, that exposure to sunlight is absolutely one of the factors in the production of the skin symptoms of pellagra. The skin lesions are usually minor and terminal symptoms of pellagra are seldom the important early symptoms of the disease.

In one instance an insane woman had a peculiar habit of keeping one hand in her bosom all the time, while the other one was exposed to the sunlight. The exposed hand developed pellagrous lesions; the other remained absolutely free. In another instance a woman wore a finger-ring on one finger on each hand. A short time after she had developed the disease she pulled the ring off from one finger and continued to expose herself to the sunlight for the benefit of her health, taking buggy rides in the sun. She continued to wear the other ring, until she was sick with a well-developed attack of pellagra. When first seen by me she had a perfectly clear, normal skin under the ring; the remainder of the hand presented a severe form of pellagrous skin lesion.

DR. JAMES W. BABCOCK, Columbia, S. C.: I think that we are all under a debt of much obligation to Dr. Long for his paper, and particularly for emphasizing once more the importance of the presence of amebiasis in pellagra, and furthermore for the observation of the deposit within the spinal foramina, thus giving another theory to explain the presence of the skin lesions.

I think most of us who have studied pellagra for any length of time are beginning to realize that we are dealing with a big problem. The trouble is that each one of us approaches the subject from too narrow a viewpoint. The dermatologist sees in the condition purely a dermatologic condition; the asylum man sees in it insanity, and so on; and each one approaches this big subject in too narrow a way. The observation of parasites in pellagra is an old one, established long ago in almost all the cases that were admitted to the Cairo (Egypt) asylum. Allen, of Charlotte, N. C., last fall demonstrated the almost constant association of amebiasis with cases of pellagra in his section of the country.

I have an associate who sees in pellagra merely an expression of the hookworm disease; and the positive denial by Dr. Stiles that he had ever seen this expression of the hookworm disease does not satisfy this friend of mine at all; it is probable that pellagra and ankylostomiasis will to him always be synonymous. Reference has been made to Dr. Bass' observation of the Wassermann reaction in pellagra. In connection therewith, I think it should not be forgotten that Dr. Howard Fox of New York has studied 30 cases of pellagra with the Noguchi modification and failed to establish the presence of the Wassermann reaction, so we have two observations—one pointing to the presence of a parasite and the other denying it.

Sir Patrick Manson mentions the presence of intestinal parasites in a condition similar to pellagra and warns observers not to associate these conditions as of cause and effect. Manson in the fourth edition of his "Tropical Diseases" says: "The novice in tropical medicine will be greatly puzzled over these cases of beriberi. If he examines the blood of these patients; possibly in a proportion of them he will find *Filaria nocturna* or some other blood worm. Very likely he will then think that the cases are forms of filariasis, and he may construct theories to explain how the filaria produces the symptoms. In some countries, in nearly all cases, he will find the ova of the *Ankylostomum duodenale*. On this evidence he may conclude that these are cases of ankylostomiasis. He had better, however, not commit himself to such a diagnosis until he has ascertained how it fares with the rest of the population as regards these parasites, for he will find that the ankylostomum and the filaria are quite as prevalent outside as inside the hospital and in the healthy as well as in the sick."

It is very important in the treatment of pellagra to remove these various parasites, but I think we shall find out in the

end that the removal of the parasites does not per se cure the pellagra.

DR. SENECA EGBERT, Philadelphia: I would like to emphasize the point Dr. Price has cited about the matter of control. From our experience in Pennsylvania I believe it will pay any of the commonwealths in the south, or anywhere else for that matter, to have enacted a very strict and comprehensive health law, and then, if they can, get a commissioner that has nerve enough to enforce the act wisely and conscientiously, appointing under him county and other local health inspectors. I was very much interested in Dr. Freeman's talk on the work of the county or the farm inspector, for that seems to me an admirable way of carrying out what I was talking about this morning—the matter of popular education—and also to attain our object of improving public health.

We in Philadelphia are interested in this matter of pellagra because, I am told, we have had some cases of the disease in our city hospital, although I have not personally seen them. But you have typhoid fever in the south, as well, and if you can get rid of that at the same time that you are getting rid of your hookworm and your pellagra your gain will be so much the greater.

It seems to me that with the kind of work that is being done by the City of Richmond, and by Virginia, in sending out live, intelligent, up-to-date men who go out into the rural districts and show the people about these diseases and also show them how to rely on the talk of the local doctor, we have the popular education which is needed as a basis; and then with a proper set of health tracts for general distribution and with increasing work, it seems to me your problem down there in regard to the hookworm, pellagra and all of these troubles—typhoid not the least of them—is going to be, not easy of solution, but capable of solution within a shorter time than you or we, perhaps, anticipate.

DR. JOHN D. LONG, Washington, D. C.: My paper may sound misleading as to my intent. The work is somewhat different from any work that has been done in pellagra before, and for that reason I wish to say that I do not mean to pretend or assume in any manner that the pellagra question is solved. I am simply giving the hypothesis on which I worked in Columbia and an outline of the studies that were carried out in accordance with a working hypothesis.

DR. CHARLES W. STILES, Washington, D. C.: I believe in a license system for the privy. Certain of the southern towns (Chapel Hill and Richmond) at present charge householders about \$5 per year license for every privy. The town then furnishes the disinfectant and pails and does the cleaning, the expense for which is covered by the license fees. It seems to me that that is a very excellent system. We must come to the point of view that the privy, despite the fact that "privy" refers to "private"—is not a private institution but a public institution. I believe also in the compulsory privy law which is being introduced in certain southern localities; but there is one factor in the south which we must not overlook, and that is that after we have the sanitary privy introduced we have an element in the male negro population which is going to be difficult to control. The white women now are using the privies when they are present; it will not be a difficult proposition to get the white men to use them; many of the negro women are using them; but it is going to be a very difficult task to teach the negro man to use them. I do not personally believe that there is any way to do this except by compulsion. Eventually we shall have to come to the standpoint in the southern states that an insanitary act means a service on the chain-gang; and eventually, I think, the chain-gang will be the school of cleanliness for the male negro.

DR. ALLEN W. FREEMAN, Richmond, Va.: We have solved an exceedingly distressing condition in Richmond, Va., as regards the privies. We had three years ago some 5,000 open privies, a great many of which were never cleaned at all; they were mostly in territory which had only recently been annexed to the city. Dr. Levy, the health officer, with his customary energy, had an ordinance passed requiring every privy in the city to be rebuilt in accordance with standard specifications which were drawn up and printed. Within six months some 5,000 privies were built or remodeled. They are cleaned

regularly by a city officer. The cost of cleaning is a charge on the property and is collected just like any other tax. I am glad to say that the reduction in typhoid following this procedure was immediate. This reduction did not follow an enormous amount of work on the milk-supply, on other foods and on the individual cases to secure the disinfection of infectious material at the bedside. The typhoid death-rate, which had never been below 44 per hundred thousand per annum, dropped last year to 24; and we hope to see it go still lower.

CERTAIN LEGAL ASPECTS OF DOMESTIC QUARANTINE*

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The word "quarantine" was originally used to designate the forty days of Lent. Then it was applied in the English law to the forty days after the death of her husband, during which a widow had the privilege of remaining in her husband's mansion house, and during which time her dower was to be assigned. Next we find the term employed with reference to the forty days during which a vessel might be detained without intercourse with the shore, after arrival from an infected port. After it was learned that forty days' isolation was not invariably necessary, the original signification was dropped, and the word came to refer only to the isolation of the vessel. The same idea, and the same methods, applied to protection at a land frontier; and later to the isolation of persons, or places contaminated with infectious disease. It is interesting here to note that syphilis was a subject of land quarantine in Europe during the earlier years.

The present domestic quarantine is no more anomalous as to original signification, than it is as to either law or science. We know well that in the case of yellow fever, for example, it is far less necessary to prevent intercourse between the patient and healthy individuals, than it is to exterminate the *stegomyia* mosquitoes. A typhoid patient is not properly isolated if his discharges are thrown into the public sewage system before disinfection. The complete disinfection of these discharges must be an integral part of such quarantine, yet that fact is not generally realized by the citizens of this country. As to the legal side, we have made practically no advance in the last hundred years. Neither the rights nor restrictions of either state or individual, are much more clearly recognized to-day than they were when this nation was born. Just as in industrial pursuits, to preserve the same general line of action, we must alter our methods to conform to recent scientific advances, so in law we must alter our statutes and institutions, to conform to the decisions and discoveries of a progressive people. Fundamental law must be flexible, and change in form according to conditions. Is it not time that our archaic practice as to quarantine should be critically examined and revised?

The first step from absolute monarchy is the establishment of institutions. Institutions may be safeguarded by constitutions. Though ours is a constitutional government, there are certain institutions which have survived which are more dictatorial than constitutional, and quarantine is one of these. It overrides all constitutional rights. Though we are supposed to have guaranteed to us the right of liberty, any person may

be imprisoned by a health department, without a previous trial, and without even having a formal complaint lodged against him. Is a retail merchant a criminal simply because a patient suffering with a mild form of smallpox happens to come into his store to make a purchase? Yet such a dealer may have his store closed, and he himself imprisoned, and he is practically without redress.

It is well recognized that the greatest liberty for the individual, as well as the greatest safety for the nation, is to be found in the observation of constitutional provisions. Whenever two courses are open it is our duty therefore to take the constitutional route. It is sometimes necessary, however, to suspend constitutional protection. Thus when the spirit of anarchy settles on a community, and a mob rules a city, the slower operations of ordinary law are unable to cope with the danger, and martial law must be declared. So too, a man's house is his castle, and the stranger may not enter without permission; neither must he take therefrom aught which is not his own; but when the house catches fire, no portion is so private that those who are fighting the fire are restrained thereby. It is contrary to both constitutional and statutory law to kill a human being; but "self-preservation is the first law of nature," and it is not deemed criminal if the killing be in self-defense, or, as in the case of a policeman in the line of duty. Self-preservation on the part of the community may demand the imprisonment, either at home or elsewhere, of an individual afflicted with, or exposed to, an infectious disease. If the ordinary liabilities were more clearly defined in the statutes, and the duties of health officials were thus definitely prescribed, much possible opposition would thus be removed, and even in those occasional extraordinary emergencies when it is necessary for the health officer to take martial command, he would have more of the confidence of the citizens, and more active support. The present system is unconstitutional, un-American and despotic in many states. Whether the powers are used for good or bad, whether as a help to the community, or a means of oppression, depends entirely on the individual officer. It is true that the power is seldom abused, but we must remember the possibility. During the old Tweed régime in New York City we are told that the health department was systematically used as a tool for collecting blackmail.¹

There is another form of abuse of sanitary authority which is more or less common. It forms an argument against boards of health, as compared with health commissioners; and it is an evidence that health officials should not be engaged in private practice. Here is an illustration: A widow in Clark County, Illinois, sold milk in a neighboring village. Her son came home from Brazil, Indiana, sick with typhoid fever. The mother nursed him, still continuing in the milk business. The local board of health consisted of three physicians, unpaid. One of these was the attendant on the typhoid patient. Knowing that the widow was dependent on her business for support, he was reluctant about forbidding her to sell the milk. The other members of the board hesitated to act, lest their motives might be misunderstood, and jealousy charged. After some thirty cases of typhoid had occurred on her route, the sale of milk was stopped, and no further cases occurred.

It is true that we have at present a check on the abuse of the power now possessed by health officials, in the form of court supervision, but that check may very easily

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Autobiography of Andrew D. White.

prove a source of annoyance, or oppression on the health departments, and the ends for which they are created be thereby defeated. For example: Suppose that the members of a household are quarantined for malaria. Every sanitarian knows that in the presence of the anopheles such a family is a source of danger to the community, and the individuals should be restricted as to liberty. It would not be difficult, however, in most communities to find physicians who have the respect and confidence of the citizens, and who would deny in court the relationship of mosquitoes to the disease, and who would assert that malaria is not infectious like yellow fever, but that it is due to some indefinite miasm which is present in certain localities. Under such conditions it would not be strange if a judge should decide that the disease is not infectious, and he might even render a judgment for damages against the health officer. In the absence of statutory provisions to the contrary, the opinion of one physician is as good in law as that of another, and a health officer is only a physician under such conditions.

The three great objects of government are: The maintenance of national existence; the maintenance of right or justice; and the public welfare.² Health departments have to do with each of these objects. Their powers are of the nature technically called police powers. While the Federal government may exercise certain of the functions of health administration in the United States, *authority* of action rests in the individual states. Certain powers may be delegated by the states to the municipalities. These delegated powers are always subordinate to state action. Thus, among the powers of cities and villages granted in the statutes of Illinois we find:³ "Sixty-seventh.—To appoint a board of health, and prescribe its duties;" and "Seventy-eighth.—To do all acts, make all regulations, which may be necessary or expedient for the promotion of health, or the suppression of disease." Acting under these provisions the City of Chicago passed an ordinance making vaccination obligatory as a requisite for attending the public schools. The Supreme Court, however, in *Jenkins vs. Board of Education*,⁴ held that the legislature of the state had not made such a requirement, and that it had not delegated the power to do so to the city.

In order more perfectly to control the collection of manure in the City of Chicago, an ordinance was passed and a contract made, after advertising for bids. One Landberg, who had made a business of collecting and selling such manure, was thereby thrown out of his occupation. He objected, and the Supreme Court found the ordinance unconstitutional, on the ground that it created a monopoly, and interfered with legitimate business. The city may regulate such occupation, by license or otherwise, but it may not, without specific power granted by the legislature, create monopoly, or destroy a private enterprise.⁵

McGehee⁶ holds differently, saying: "The property interests in the noxious materials must be subordinated to the general good." He refers to *California Reduction Co. vs. Sanitary Red. Works*, 199 U. S., 306, and *Gardner vs. Michigan*, 199 U. S., 325.

In these cases the matter of monopoly was distinctly considered as well as the interference with private business. Both of these cases were mentioned in the brief of the attorneys in the Landberg case. Since these decisions

were from the highest court in the land, it seems strange that in differing from the Federal court the Illinois court did not specially mention these decisions in its opinion. It is the contention of the Chicago Department of Health that the present method does injure the community, and that the method proposed in the ordinance was necessary to safeguard the interests of the citizens.

The general rule governing such matters is thus stated by Freund.⁷

Under the principle of local self-government local authorities cannot be vested with powers necessarily exceeding their territorial jurisdiction; those matters therefore which equally affect the people of the state at large, and cannot be confined locally, must be reserved to the state legislature. Moreover, the inauguration of a novel policy in matters of safety and health, the prohibition of articles of consumption possibly but not undoubtedly injurious to health, the establishment of monopolies, the restriction of the right to pursue established avocations, may under circumstances be conceded to the legislature of the state, but cannot be introduced by local authorities under mere general grants of power.

Such a limitation of municipal power is reasonable. If left to the individual municipalities, confusion, and lack of protection is likely to arise, and local feeling may lead sometimes to excess of reasonable action. Thus adjoining municipalities may establish very different regulations as to quarantine. It is necessary, therefore, that there be a general supervision, and coordination.

In spite of the delegation of powers to cities and villages in Illinois, as cited above, we find that as amended in 1907 the Revised Statutes,⁸ say of the State Board of Health that it "shall have supreme authority in matters of quarantine, and may declare and enforce quarantine when none exists, and may modify or relax quarantine when it has been established." Such a provision would be all right if it were made more definite, but there is nothing in the statutes making it requisite on any one to report infectious diseases to any one, specifying what diseases are to be quarantined, or defining in the least how, or to what degree such quarantine is to be exercised. It puts into the hands of the executive of the board almost unlimited power. Some time ago in a dairy district supplying Chicago with milk, families were quarantined for scarlet fever. A representative of the state board appeared and abolished the quarantine. If the law is constitutional, he had the undoubted legal right to do so autocratically. There was no appeal.

It is possible that such a law as that just mentioned might be declared by the court unconstitutional, for the reason that it gives to a man, or body of men, an arbitrary power, without limitation, and violates the provisions of the fifth and fourteenth amendments to the Federal Constitution. Health boards, and officers, have only executive power. They must not act in a legislative capacity. There is nothing in the statutes of the State of Illinois which limits quarantine of human beings to infectious, or contagious diseases. Though animals afflicted with contagious diseases are especially mentioned in the statutes, and provision is made against the spread of hog cholera, glanders, and cattle fever, so far as the state statutes are concerned human beings are permitted to communicate their diseases to others with impunity. On the other hand, there is nothing in the statutes which would prevent the state board of health, through its executive officer, from quarantining a man afflicted with any disease, nephritis for example, though

2. Freund, *The Police Power*, Sec. 4.
3. Chapter 24, Art. V, and Section 62.

4. 234 Ill., 422.

5. *Landberg vs. City of Chicago*, 237 Ill. 112.

6. *Due Process of Law*, p. 336.

7. *Police Power*, Sec. 142.
8. Chapter 126a, Sec. 2.

the common law practice might prevent such action. Still court action is not rapid, and a corrupt politician might thus gain the temporary seclusion of an opponent.

As set forth by Prof. Goodnow⁹ there are three ways possible by which a nuisance may be determined; by the common law, by legislation, and perhaps by executive action when so authorized by legislative enactment. In common law, the courts are supreme, and boards of health have no power to enlarge common law nuisances. Smallpox is a common law nuisance, but malaria is not. As to the right of legislatures to enact such laws, there is no question. The restrictions on boards of health, or health officers, are not so generally recognized by sanitarians. In the most excellent decision of *Pott vs. Breen*,¹⁰ the Supreme Court of Illinois said of the State Board of Health:

It had and could have no legislative power. Its duties were purely ministerial, and the provision of the statute authorizing the board to make such rules and regulations as it should from time to time deem necessary for the preservation or improvement of public health cannot be held to confer that broad discretionary power contended for.

And:

We are of the opinion that the powers of the board are limited to the proper enforcement of the statutes, or provisions thereof, having reference to emergencies requiring action on the part of the agencies of government to preserve the public health and prevent the spread of contagious or infectious diseases.

And again:

Its duty to recommend legislation is repeated more than once in the act in connection with specifications of the powers and duties of the board.

The Supreme Court of Wisconsin gave a similar opinion in *State vs. Burge*.¹¹

The Minnesota Supreme Court, in *State vs. Young*,¹² said:

It is a principle not questioned that, except where authorized by the constitution as in respect to municipalities, the legislature cannot delegate legislative power—cannot confer on any body or person the power to determine what shall be law. The legislature only must determine this.

So we find in *Dowling vs. Insurance Company*¹³ that it was an unconstitutional act when the legislature attempted to leave to the insurance commissioner the decision as to what form of a policy must be used. So too in *Schaezlein vs. Cabaniss*¹⁴ it was illegal to leave to an executive officer the power to determine the particular form of appliance which should be used in factories to limit the dangers therein, and making it compulsory on the owners to comply with his orders.

Freund summarizes:¹⁵

It cannot be left to an administrative officer to determine conclusively the existence of a danger, and the choice of measures to be taken against it, since that would involve an unconstitutional delegation of legislative power.

The fifth amendment to the Federal Constitution provides that no person shall "be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation." The fourteenth amendment says in

Section 1: "No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person of life, liberty, or property, without due process of law."

What is "due process of law?" Pomeroy says:¹⁶

Due process of law implies primarily that regular course of judicial proceeding to which our fathers were accustomed at the time the Constitution was framed; and, secondly, and in a subordinate degree those more summary measures which are not strictly judicial but which had long been known in the English law and which were in familiar use when the Constitution was adopted. These summary measures generally, though not universally, form a part of that mass of regulations which many writers term "Police," and which relate to the preservation of public quiet, good order, health, and the like. . . . The summary measures which may form a part of due process of law are those which have been admitted from the very necessities of the case to protect society by abating nuisances, preserving health, warding off imminent danger, and the like, when the slower and more formal proceedings of the courts would be ineffectual.

In *Murray's Lessee vs. The Hoboken Land Company*,¹⁷ Mr. Justice Curtis says:

Though due process of law generally implies and includes actor, reus, judex, regular allegations, opportunity to answer, and a trial according to some settled judicial proceedings, yet this is not universally true. There may be, and we have seen that there are, cases under the law of England after Magna Charta, and as brought to this country and acted on here, in which process in its nature final, issues against the body, lands and goods of certain public officers without any such trial.

Due process is not necessarily judicial process.¹⁸ The term, therefore, is now frequently applied to legislation. the underlying principles being that all persons interested may have an opportunity of being heard, and that the legislation does not represent arbitrary acts of government.¹⁹

An arbitrary statute is not due process.

The just cause of legislation is the legitimate function of government. A statute not supported by such cause is not due process.²⁰

Practically the present system of judicial control over legislation has meant in many cases that unless all three departments of government are convinced of the justice and reasonableness of a radical change in social or economic policy it cannot become embodied in principles of law.²¹

A recognition of these principles, in the place of restricting the liberty of action for health officials, really increases their power. A man walking on uncertain ground must go carefully. When assured of its safety, he may step boldly and with speed. If the infectious nature of a disease is not legally established, no matter how sure the official may be, he is liable to be blocked by *habeas corpus* proceedings. He must then establish before the court the correctness of his diagnosis, the infectious nature of the malady, and that the measures taken are both reasonable and necessary. If he fails to satisfy the court on every point, the case is lost.

General rules and regulations have not the same standing as statutes.²²

Such rules and regulations should only be issued in conformity with the clear and evident intent of the

16. Constitutional Law, Sec. 246.

17. 18 Howard 272.

18. Reetz vs. Michigan, 188 U. S., 507.

19. Johnson, J., in *Bank of Columbia vs. Okley*, 4 Wheaton, 235; also *People vs. Smith*, 21 New York 595, and *People vs. Adirondack R. Co.* 160 New York 225, affirmed in 176 U. S. 335.

20. Freund: Police Power, Sec. 20.

21. Freund: Police Power, Sec. 21.

22. *Health Dept. vs. Knoll*, 70 N. Y., 530, and also *Reed vs. People*, 1 Park Cr. 481.

9. Columbia Law Review, ii, 203.

10. 167 Ill., 67.

11. 70 N. W. Rep. 347.

12. 29 Minn., 551.

13. 92 Wis. 63.

14. 135 Cal. 466.

15. Police Power, Sec. 34.

statutes. In *Kirk vs. Wyman, et al.*,²³ before the Supreme Court of South Carolina, we find this statement:

From this it follows that boards of health may not deprive any person of his property or his liberty unless the deprivation is made to appear, by due inquiry, to be reasonably necessary to the public health; and such inquiry must include notice to the person whose property or liberty is involved, and the opportunity to him to be heard, unless the emergency appears to be so great that such notice and hearing could be had only at the peril of public safety.

In this case the court held that the health department exceeded its authority in removing a case of anesthetic leprosy to a pest-house. Sanitarians would agree that typhoid and malarial fevers are infectious, dangerous to the community, and legitimate objects for some form of quarantine. These facts have been recognized for some time. However, for a board of health, or a commissioner of health so to declare, or rule, would in fact be an act of legislation exceeding his authority. It would be giving neither due notice, nor opportunity to be heard. The quarantine of such a case could hardly be justified on the ground of an emergency, for the general conditions have long been known, without any attempt on the part of the executive to secure proper legislation. The case of epidemic poliomyelitis might be different. The disease has generally been considered non-infectious, and therefore not a proper object for quarantine. The fact has only recently been demonstrated that it is infectious. The statutes should be sufficiently elastic in construction to permit health officials under such conditions to control and quarantine such a disease until such time as the legislature could reasonably be expected to act. If the health executive has placed the facts properly before the legislative body the responsibility rests on the law-makers, and the executive no longer has the right, in the absence of new facts, to declare such a disease quarantinable. So too, some well-known disease, which there seemed no reasonable probability would ever enter the particular community, might not have been mentioned in the statutes, and its appearance would constitute an emergency. In the case of *Jenkins vs. Board of Education*²⁴ it seems that the Commissioner of Health had issued orders declaring smallpox epidemic. The court held that he had exceeded his authority.

There is nothing in the nature of an emergency in the occasional recurrence of the well-known disease of smallpox in a city like Chicago, which may not be provided for by general rules and regulations prescribed by the legislative authority of the city.

It must be recognized that in all these litigations the health department runs the risk of defeat, and so of loss of prestige; and that even when the final decision is on the side of the health service, adverse decisions in the lower courts involve loss of time as well as expense.

The statutes of the states are generally silent on the authority of diagnosis, and in the cases which have come to court there is some difference of opinion. An infectious disease is a nuisance. In *Kenedy vs. The Board of Health*,²⁵ it was said:

The determination that a thing is a nuisance is final under the Pennsylvania statutes, and in a suit to collect expenses or abate the nuisance the defendants could not offer evidence to show that there was no nuisance.

In *Brown vs. Purdy*,²⁶ as to a question of the diagnosis by the health officer, it was held:

If there was any case for his judgment, or any fact or appearance or symptom as to which a question of smallpox or not could arise, his determination was final as to the legality or propriety of removal.

On the other hand, in *Miller vs. Horton*,²⁷ a board of health was held liable for the killing of a horse, at the order of the commissioner of contagious diseases of animals, who had decided that the horse had glanders. His diagnosis was disputed in court by unofficial testimony, and the court took on itself the responsibility of deciding that the horse did not have glanders. If the responsibility of diagnosis is not placed on the health officer, it must be remembered that the legal diagnosis must be made by the court, which is not supposed to have a medical education.

It will be noticed that in *Brown vs. Purdy* there is another question, namely, the authority of the health officer to remove a patient afflicted with an infectious disease. In Maine a police officer and the city physician, acting under the direction of the mayor of Bangor, after seeking a more peaceable entrance, broke into a house, and took a child sick with smallpox out of its mother's arms, to a hospital. Action for trespass was dismissed, because the statute permitted health officers of a town in which a person was affected with a disease dangerous to the public health to remove such a person to a separate house; but the court called attention then to the fact that such power must be clearly given in the statutes.²⁸

In an early case in Maryland,²⁹ the court held that the health officer must send a patient to the hospital if in his opinion such a course were necessary, and it further held that the health officer alone could decide how much it was necessary to do, and the captain of the boat on which the smallpox had been found must pay the bill. It is doubtful if a court to-day would go so far. In *State vs. City of New Orleans*,³⁰ the legislative power of the state to decide where smallpox patients were to be treated, was upheld. As opposed to the authority of the health officer to remove a patient against his will, in *Boom vs. City of Utica*,³¹ the court said: "A person sick of an infectious or contagious disease in his own house, or in suitable apartments at a public hotel, or boardinghouse" is not a nuisance.

In *Kirk vs. Wyman*,³² the court further uses this expression:

Inasmuch as it is the province of the legislative branch to determine what laws and regulations are necessary to the public health, statutes and regulations made and measures taken under such statutes and intended and adopted to that end are not subject to judicial review; but the courts must determine whether there is any real relation between the preservation of the public health and the legislative enactment, or the regulations and proceedings of boards of health under authority of the statute.

There is an old adage: "In time of peace prepare for war." If we wait for an epidemic before the due process of law, we may find our hands occupied with the preliminary preparations, when we should be engaged on the firing line. That has been the experience in the beginning of most great epidemics. Due process includes the argument of the defense. Education is a portion

23. S. E. R., 387.
24. 284 Ill., 427.
25. 2 Pa. St. 366.

26. S. N. Y. St. Rep. 143.
27. 152 Mass. 540.
28. *Haverty vs. Bass*, 66 Me. 71.
29. *Harrison vs. Mayor of Baltimore*, 1 Gill 264.
30. 27 La. 521.
31. 2 Barb. 104.
32. 65 S. E. R. 387.

of that due process. The education is not complete until a decision is reached. The decision may be in the legislature. If it is not there, it is likely that it will be in a court. For the benefit of each side the decision should be reached when time is not an important element. If the conclusions are definitely stated in legislative enactment, the fight in the epidemic will not be along the whole line, but in a limited section. On the other hand, in the absence of such definite statutory enactments, long usage may give a health officer a confidence which is unwarranted, and he may suddenly wake up, as the result of a court decision, to a realization of the fact that his method is illegal. Lieber³³ calls attention to the fact that institutions, though not viciously conceived, may become injurious. They may become hollow and like the empty boxes in an ill-managed house, become catch-alls for rubbish, and thus nuisances. McGehee³⁴ advises that, when in doubt as to authority, health officials have the matter determined in advance by the courts, for self-protection.³⁵ It matters not how desirable an object may be of attainment, if the method used is even slightly illegal, it should be abandoned, and a more just way found. In *Potts vs. Breen*,³⁶ the court admitted the advisability of vaccination, and pointed out the legal method of its attainment. In *Boyd vs. United States*,³⁷ Mr. Justice Bradley says:

Illegitimate and unconstitutional practices get their first footing in that way, namely, by silent approaches and slight deviations from legal modes of procedure.

A person who knowingly and willfully exposes another to infection is in fact a criminal and he is also liable for civil damages. Intentional wrongdoing is not necessary; all that is necessary to be shown is that due precautions have not been used.³⁸ To-day, many cases of infectious disease are kept hidden, through fear of placards, or of quarantine, or of loss of trade. In many mild cases no physician is employed for these reasons, and because the persons involved do not recognize their responsibility to the community. In this way not only is the danger to the community increased, but very often valuable time is lost, as in diphtheria, and the life of the patient is sacrificed by the delay. A statutory enactment is educational as well. The parent is no longer able to quote the conflicting theories of physicians, of whose relative authority and competence he is incompetent to judge.

Without considering the legal responsibility of the community to care for those quarantined; or the duty of the health service to pay for articles seized, or destroyed; or the liability of a community to those who innocently contract an infectious disease through the inefficiency of a health department; or the desirability of an enactment making school inspections obligatory; it is suggested that much of our present confusion, and

possible inefficiency, will be relieved by securing certain statutory enactments.

First: The statutes should definitely specify certain diseases as infectious, and require that they be reported to proper officials.

Second: The hiding, concealing, or neglecting to report such diseases, or a suspicion of their presence, should be made a misdemeanor, punishable by fine or imprisonment.

Third: The knowingly or wilfully exposing a person to infection, through neglect of the principles of quarantine, should be specifically made a misdemeanor, and punishable by fine or imprisonment.

Fourth: The statutes should make it obligatory on health officials to maintain quarantine, and the minimum requirements of such quarantine should be stated. It must be recognized that the problems of a thinly settled community are very different from those of the densely populated cities, and power should be given to local authorities to make more stringent regulations in the form of ordinances. In such statutes it must be remembered that the essentials of efficient quarantine differ according to the character of the diseases.

Fifth: The legal status of disease carriers, especially typhoid and diphtheria, should be definitely stated. They should be obliged to report regularly to the local health officer (though not for treatment), and should by law be restricted from engaging in certain occupations, such as around dairies, or restaurants, or other places where they would be likely to spread the disease. No such person should be given a clear bill of health, until after examination by the legal guardian of the public health he shall be found free from evidence of disease.

Sixth: The diagnosis of the health official should be considered final, subject only to an appeal to his superior. In a recent case in California, in one of the lower courts, physicians were permitted to testify to fact, not expert opinion, in the diagnosis of disease. It was recognized that they used their expert training to make the diagnosis, but having made it, the court accepted it as fact, not opinion. There is no reason why a man should not testify that a disease is typhoid, more than that he should not testify that a certain animal is a horse. In the absence of such a declaration on the part of the legislature, the diagnosis of a competent health officer may be off-set in the courts by the testimony of an irresponsible private physician. Mistakes of diagnosis may occur, and private individuals be injured thereby, but the danger to the community will justify such a provision. *Salus populi est suprema lex.*

Seventh: In the case of an infectious disease it should be obligatory on the local health officer to give to the persons responsible for the care of the patient printed instructions, or orders, regarding the case, including the care of discharges from the patient, and violations of such orders should be punishable. Such instructions should not be left to the attending physician, unless he be official.

Eighth: Release from quarantine should be only on the signed permit of the official. School boards should not be permitted to accept such certificates from the attending physicians, unless they be official.

Ninth: Health officers should be obliged by the statute to keep as complete a record as possible of the circumstances of the infection, and trace, if possible, the source of infection, and the means of the communication. For legal, as well as scientific reasons, such a record should show the result of bacteriologic or blood

33. Civil Liberty, Chap. 26.

34. Due Process of Law, p. 374.

35. *People vs. Board of Health*, 140 N. Y., 1.

36. 167 Ill. 67.

37. 116 U. S. 616-635.

38. *Holland vs. Bridenstine*, 104 Pac. R. 626, a physician was assessed damages for communicating gonorrhea by the use of unclean instruments.—Supreme Court of Washington sustained. A railroad ticket agent worked while suffering with smallpox. Passengers contracted the disease from him, and were awarded damages against the company (Court of Civil Appeals of Texas, approved *M. K. & T. Ry. Co. vs. Raney*, 99 S. W. Rep. 589).—Damages awarded against a city for typhoid fever from an infected public water supply (*Milnes vs. Huddersfield*, L. R. 10 Q. B. Div. 124).—According to *The Engineering News*, April 28, 1910, p. 906, the Civil Court, London Assizes, recently awarded damages to the amount of \$2,430 against a milk dealer for typhoid fever contracted by a user of the infected milk. The principles are the same as those holding railway companies specially liable for injury to stock when the company neglects fences. Also see *City of Pekin vs. McMahon*, 154 Ill. 141, and the sheep case of *Herrick vs. Gary*, 65 Ill. 101.

examinations, and whether such tests were made officially, or by private practitioners.

Tenth: The statutes should give to the health officials authority to remove a person sick with an infectious disease to a hospital, or other suitable place for treatment and isolation. Such removal should be made discretionary, not obligatory.

Lastly, provision should be made for emergencies, and health officers should have certain liberty of action in the presence of danger, which is not provided against in the statutes.

701 Davis Street.

ABSTRACT OF DISCUSSION

DR. JOHN H. WHITE, New Orleans: There was a time when we were compelled to resort to regulations in health matters, rather than legislation, because of the very scanty knowledge we had of the methods by which the various diseases were diffused in our communities. Fortunately that time is passing. All legislation must be carefully framed so as not to bring the health officer up against a stone wall. There must be some loophole left for him to use discretion. The state from which I come practically entrusts its state board of health with the power to legislate—a power which is absolutely unconstitutional, and which will be thrown down any time that anybody chooses to take it into the supreme court, and leave the boards of health helpless to defend themselves, even though they have been doing exactly the right thing.

Dr. Hemenway's remark about the confidence that the health officer will have when he is backed by law and not by regulation appealed to me very strongly. He can go forward then, because his backing is in line with the law of the land. I have had some experience of my own; by depriving men of their liberty—imprisoning them in box-cars to keep them from disseminating yellow fever—with absolutely no law or regulation behind me, I have run the risk of being deprived of my own liberty; and I have done it so much that had I not passed the statute of limitation on this matter I would be rather afraid to live in the state now.

The health officer, in any community which is able to pay a health officer, should under no circumstances follow a private practice. No matter how honest a man may be, he will have an unconscious leaning, if nothing more, toward his own patients; he will feel averse to getting them into trouble. But in a country village that is utterly unable to pay the health officer more than \$100 or \$200 a year, the officer is obliged to resort to the practice of medicine, and the village must do the best it can.

The one thing that stood out as one of the most salient points to me, however, was this matter of the insufficient authority of the health officers and others, evidenced in our own work in immigration service, to make a diagnosis and to have it legally sustained. I have had the courts take away a case of trachoma on the evidence of men who said it was not trachoma because there was no law to say that the decision of the medical officer in that case was final. The plague was announced in the city of San Francisco; a judge on the United States bench declared from the bench that he had had evidence submitted to him sufficient to justify him in the assertion that there was no plague in the city of San Francisco and offered to put Kinyoun in jail for saying that there was plague in San Francisco. We can have no stronger evidence than that of the necessity of having law back of the health officer in every particular in which law can be substituted for regulation.

I know of many instances in which the law against concealment of disease by physician or patient prevented disaster in the endeavor to wipe out disease. Without the ability to force the unwilling to tell the truth, it is almost impossible to wipe out an epidemic in a community. With that ability, the health officer's hands are held up mightily. Such laws as Dr. Hemenway advocates, adroitly framed, leaving as much discretion to the health officer as is consistent with the constitution, and enacted in every state in the Union, would

double the capacity of the health authorities for the extirpation of disease.

DR. W. A. EVANS, Chicago: If Dr. Hemenway will read the *Engineering News* for May he will find reference to a civil suit for damages when the act committed was selling milk, which spread typhoid fever. Health officers do not know enough law, and courts take peculiar views on health questions. The Jenkins and Landberg cases are in court. Each of these was decided on the facts and in neither were the facts before the court, or rather each was an expert opinion on the facts and neither witnesses as to the facts nor expert witnesses had been heard. All health department work is based on police power. No health case has had its day in court until the facts have been heard.

DR. W. F. SNOW, Sacramento, Cal.: Vaccination laws have been mentioned during this discussion. I received this morning a letter which states that the vaccination case in California was decided in favor of the State Board of Health. The district courts had decided that our compulsory law was unconstitutional on account of class legislation and that the State Board had no authority in the public schools—the decision as to when vaccination was necessary resting solely with school trustees. The appellate court has just reversed this decision of the lower court and declared the law to be constitutional. The state board now intends to proceed with its enforcement.

DR. HENRY B. HEMENWAY, Evanston, Ill.: The courts have certain methods of procedure which may hardly be gotten around; and the supreme court considers the questions of law, rather than the questions of fact.

VARIATION OF DOSAGE DEPENDENT ON THE METHOD OF ADMINISTRATION*

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This paper is merely a preliminary report intended to call attention to the necessity for the systematic investigation of the rate of absorption of different drugs after different modes of administration and the ratio of absorption to excretion and destruction, and also to one of the methods which may be employed in investigating the subject. Different drugs will require different methods of procedure, and in all cases various species of animals must be employed before we can transfer the results to man.

It is well known that the toxicity of certain drugs varies with the mode of administration, but the exact cause of this variation has not been studied sufficiently in many cases, though it is obvious that the therapeutic dose must usually vary in much the same way that the toxicity does. A large number of experiments will be required to determine the comparative activity of the various potent drugs administered in different ways, but until such determinations have been made with far greater accuracy than has been done with most of them, prescribing must lack that degree of precision which we are coming to demand in every branch of medicine.

It has been said that dosage is the most vulnerable part of therapeutics, yet the one on which the healing art

* From the Laboratory of Pharmacology of Cornell University Medical College. Presented at the International Congress of Medicine and Hygiene, Buenos Ayres, May 25, 1910. Certain facts presented in this paper were stated in a paper read at the meeting of the American Society for Pharmacology and Experimental Therapeutics, Boston, Dec. 29-30, 1909. These will be presented in greater detail in subsequent papers from this laboratory.

mainly depends, and since the correct dosage depends on the rate of absorption compared to that of excretion and destruction, it is obvious that we should have a fairly accurate knowledge of these processes, but reference to the literature will show that our knowledge of the subject is fragmentary in the extreme.

Thus, many of the leading text-books on pharmacology are silent regarding the rate of absorption and excretion of such important drugs as digitalis, and the questions of the absorption, excretion and destruction of the various members of this group have been neglected almost completely by pharmacologists.

Maurel¹ has determined the fatal doses of numerous drugs for different animals by various modes of administration, but his experiments, with strophanthin at least, have little bearing on the therapeutic dose for man. Experiments made in this laboratory during the past three years show that the absorption of the different drugs belonging to the digitalis group from the alimentary canal of animals is very variable. The variability is extreme in the case of strophanthin and amorphous strophanthin as well as in that of crystalline ouabain, or the so-called crystalline strophanthin. The results obtained on animals are supported by observations made on man, and they tend to throw grave doubt on the value of many of the clinical observations made with strophanthin in the past, when the drug was administered orally.

Despite the want of systematic studies of these questions of absorption, excretion and destruction, there is an opinion, which is fairly widespread, that when one knows the oral dose of a drug one can compute the amounts suited for rectal and subcutaneous use by certain rules, but of course, no one denies that there are numerous exceptions to the rules given for the computations.

The following quotations, which might be multiplied almost indefinitely, illustrate what has just been said on this point:

Sollmann, "Text-book of Pharmacology," 1906, 2nd. ed., p. 134, states that "the rectal dose may approach very closely to the subcutaneous, especially with very active poisons. The hypodermic dose is about one-third of the oral dose."

Cushny, "Pharmacology and Therapeutics," 3rd. ed., 1903, p. 34, states: "*Hypodermic method.*—As a general rule about one-half of the ordinary amount is sufficient. *By rectum.*—The rate of absorption from the rectum as compared with that of the stomach and bowel is still a disputed point, and some physicians recommend that the dose be reduced to three-fourths, while others recommend one or one and a half times that given by the mouth."

The mere presence of a drug in the general circulation does not prove that the action is the same, quantitatively, irrespective of the way in which it was administered, but the physiologic action as a rule must be very nearly proportional to the amount present in the circulation at any one time, or in a unit of time.

Those drugs which are absorbed from the alimentary canal but which are destroyed in the liver before they reach the general circulation might as well remain unabsorbed, so far as their systemic action is concerned, and in our experiments such absorption has been disregarded, but no appreciable destruction of crystalline ouabain or amorphous strophanthin occurs in the liver of the cat or dog in the course of a few hours after the oral administration.

While the degree of dilution has a marked influence on the toxicity of certain poisons, such as strychnin, by

subcutaneous injection,² this must be regarded merely as a question of alteration of the ratio of absorption to excretion and destruction, for we have found that the slow intravenous injection of strychnin permits of the administration of several times as much as is fatal when the injection is made more rapidly.

We must suppose that the dilution of most drugs must be maximal after the oral administration, since the slow absorption from the stomach and intestine permits of the distribution throughout the body tissues. Mere dilution appears to play no important rôle in the action of the members of the digitalis group, particularly when these are very slowly injected, as in our experiments.

METHOD USED IN ESTIMATING ABSORPTION

We found that the absorption of a slight excess over the minimal fatal vein dose of crystalline ouabain, amorphous strophanthin, digitalis, strychnin and some other drugs into the general circulation was followed promptly by death, after typical symptoms, regardless of the way in which these drugs were administered, hence it remained merely to insure that the minimal fatal vein dose should enter the circulation. This was accomplished as follows: A measured amount of the drug to be examined was placed in the stomach, rectum or subcutaneous tissues, according to which structure was to be studied, and after the desired interval of time enough of the drug was injected intravenously to cause death. The fatal dose by intravenous injection being known, it was only necessary to subtract that required under the above conditions from the ordinary fatal dose by the vein, the difference being equal to that absorbed.

The following will illustrate the point: One part of crystalline ouabain injected into the femoral vein of the cat is fatal to ten millions of times its weight of animal, or, 0.1 mg. of crystalline ouabain is fatal to one kilogram of cat in this way. A cat received by the stomach 0.3 mg. ouabain per kilo of weight and after four hours it required 0.076 mg. per kilo to cause death. The difference between 0.1 mg. and 0.076 mg. being 0.024 mg., or 24 per cent. of the fatal dose by vein, it follows that the cat had absorbed an amount equal to 24 per cent. of the fatal vein dose, but only 8 per cent. of that administered by the stomach.³ The correctness of the method of estimating absorption is attested by the results obtained by the intravenous injections of variable proportions of the fatal dose of different digitalis bodies, death always resulting when the sum of the fractions administered equaled one hundred per cent. of the fatal dose. Fifty per cent. of the fatal dose of amorphous strophanthin by subcutaneous injection and fifty per cent. of the fatal dose of crystalline ouabain by the vein were also found to be fatal at once. We must conclude, therefore, that death follows the absorption of the fatal vein dose of one of the digitalis bodies into the general circulation, regardless of the method of administration.

This statement requires some modification. Since a barely fatal dose of crystalline ouabain might be absorbed slowly and a part excreted before the last had been absorbed without death occurring, it is more accurate to say that the presence in the general circulation of an amount equal to the fatal vein dose, is fatal to the animal.

2. Meltzer, S. J.: Jour. Exper. Med., 1901, v, 643.

3. The details of the method of injection are given in the Am. Jour. Pharm., 1910, lxxxi. The absorption of some of the digitalis bodies is estimated more conveniently, by substituting crystalline ouabain for the drug under examination for the intravenous injection, since we have found that these are capable of replacing each other in the proportion of their activity when injected by the vein.

1. Maurel's papers will be found in *Compt. rend. Soc. de biol.* during the past ten years.

In a series of experiments extending over several years we were able to get extraordinary uniform results with several of the digitalis bodies with intravenous injections into cats. Quite recently we have found a much larger number of cases in which the animal was more tolerant than just stated, but we have rarely seen animals succumb to smaller doses than that indicated except in the case of very fat animals. The results with strychnin are quite uniform when the duration of the injection is the same.

TABLE 1
ABSORPTION OF CRYSTALLINE OUABAIN FROM THE CAT'S ALIMENTARY CANAL

	Dose, Mgs. Per Kg.	Doses Daily.	Total Doses.	Per Cent. of Total Absorbed.	Per Cent. of Fatal Vein Dose Absorbed.
A.	0.1	4	5	10	42
B.	0.1	2	2	7*	20
C.	0.05	4	14	9*	55
D.	0.1	2	6	2.5	8
E.	0.05	2	2	11*	69
F.	0.2	2	2	5	41
G.	0.4	2	1	9*	69
H.	0.4	3	9	8	52
I.	0.2	3	6	5	43
J.	0.5	2	3	0	0
K.	0.6	1	1	0*	0
L.	0.3	2	7	1*	7
	0.3	2	7		

* The percentage of absorption is computed for the amount administered during the last 36 hours only.

TABLE 2
ABSORPTION OF CRYSTALLINE OUABAIN FROM THE CAT'S ALIMENTARY CANAL (AFTER SINGLE DOSES)

	Dose Mgs. Per Kg.	Duration		Per Cent. of Dose Absorbed.	Per Cent. of Fatal Vein Dose Absorbed.	
		Hours.	Minutes.			
A.	0.2	2	35	0	100	
B.	0.3	18	11	0	0	
C.	0.3	1	40	0	0	With mustard; emesis in 15 minutes.
D.	0.3	3	40	5	15	With alcohol.
E.	0.3	4	10	8	24	After fasting 42 hours.
F.	0.3	6	10	0	0	With oil turpentine.
G.	0.3	5	50	3	10	With oil turpentine.
H.	0.3	10	10	6	18	After hydrated chloral.
I.	0.3	2	10	10	30	After hydrated chloral.
J.	0.5	6	30	0	0	
K.	0.5	18	55	3	15	After hydrated chloral.
L.	0.5	18	35	0	0	
M.	0.8	19	35	4	30	
N.	0.8	19	35	0	0	After hydrated chloral.
O.	0.8	5	..	5	40	After hydrated chloral.
Dogs						
A.	0.2	6	30	0	0	
B.	0.2	3	40	12	100	After fasting 36 hours.
C.	0.5	3	0	2	50	
D.	0.6	6	40		10	

The question which presents itself naturally is why do we not determine the rate of absorption from the alimentary canal by the simple process of administering enough of the poison by the mouth to cause death? There are several objections to this apparently simple method in many cases. It has been found⁴ that the rate of absorption of strophanthin from the alimentary canal of the cat and dog depends on the amount administered, not only is a larger total amount of a very large dose absorbed than of a small dose, but a larger percentage of the larger dose is also absorbed. In fact, no absorption whatever appeared to follow moderately large doses in many cases, whereas death sometimes occurred promptly from large doses.

Another objection to the attempt to study the rate of absorption by the oral administration of the just fatal dose, depends on the fact that a very large number of experiments would be required to fix the just fatal dose by the mouth of such drugs as digitalis, and in fact it is

often impossible because of the frequency with which emesis follows the absorption of less than the fatal dose.

Table 1 gives the absorption from the cat's alimentary canal where the administration extended over a number of days. The variability in the percentage of the fatal vein dose actually in the circulation, as shown in the last column, is of especial significance in view of the fact that strophanthus, (as well as crystalline ouabain) is used clinically in doses which would be immediately fatal if administered by the vein.

The death of cat "A" affords a striking example of the rapidity with which absorption may occur, just as "L" and "N" illustrate the opposite extreme. Fasting and alcohol certainly appear to favor absorption, and this is true perhaps of other mild irritants, though it did not follow the use of mustard, small doses of which were ineffective while larger doses caused emesis. It should be observed that the figures after the decimal points in the dose are multiples of the lethal vein dose; thus cat "A" had twice the lethal vein dose, while "M," "N" and "O" had eight times the lethal dose by vein.

The fall of blood pressure caused by large doses of hydrated chloral may have some influence on absorption, but this is variable and uncertain. The results with dogs are only approximately accurate, the dose by vein required to cause death being variable.

TABLE 3
ABSORPTION OF STRYCHNIN FROM THE CAT'S ALIMENTARY CANAL

	Dose Mgs. Per Kg.	Duration		Per Cent. of Dose Ab- sorbed.	Per Cent. of Fatal Vein Dose Ab- sorbed.	
		Hrs.	Min.			
A.	0.35	..	28	..	100	Stomach full of meat.
B.	0.5	1	20	40	100	After fasting.
C.	0.5	..	..	..	..	Death occurred 33 minutes after rectal dose.
D.	0.25*	..	33	30	70	
E.	0.5	1	51	4	10	
F.	0.5	3	7	0	0	
G.	0.5	..	54	14	33	
H.	0.5*	1	28	30	70	
I.	0.33†	..	..	..	..	Equal to 1½ times fatal vein dose.

* Rectum.

† Subcut; animal survived.

Table 3 shows the amount of strychnin in the circulation after the expiration of the time indicated, rather than the actual amount absorbed, since excretion takes place rapidly, soon after its absorption, though it is stated that some days elapse before excretion is complete. Our experiments seem to indicate that the strychnin

leaves the circulation very promptly, a part of it being fixed in the tissues probably, or it may be that some of the strychnin administered by the stomach escapes absorption into the circulation.

In the table, "E" is given as having absorbed no strychnin, since it required the full fatal dose by vein to cause death. But the animal had a typical convulsion before the beginning of the intravenous injection, hence we must infer that excretion was equal to the amount absorbed from the alimentary canal. It is of the utmost interest that "A" died after 0.35 mg. by the stomach while that organ was full of meat, whereas "H" survived almost exactly that dose administered subcutaneously. Absorption of strychnin from the rectum appears to be more rapid as a rule than from the stomach.

TABLE 4

ABSORPTION OF DIGITALIS FROM THE CAT'S ALIMENTARY CANAL
BY STOMACH

	Dose Mgs. Per Kg.	—Duration—		Per Cent. Total Absorbed.	Per Cent. Fatal Vein Dose Absorbed.
		Hours.	Minutes.		
A.	100	3	26	16	16 Infusion.
B.	100	3	2	7	7 Infusion.
C.	100	3	9	34	30 Tincture.

BY RECTUM

D.	100	2	12	8	10 Tincture.
E.	100	4	37	2	2 Infusion.
F.	100	4	3	12	10 Infusion.

Table 4 shows the absorption of digitalis from the stomach and rectum. The limits of error are probably a little greater with digitalis than with crystalline ouabain. The fatal dose in the above table refers to the amount required by vein to kill at once, and is a little higher than the minimal lethal vein dose.

In this small series of experiments the absorption of digitalis from the rectum is decidedly less than from the stomach, but the number of experiments is entirely too limited to justify conclusions on this point. They certainly show the need of further studies in absorption of digitalis and these are now in progress in this laboratory. Different specimens of digitalis were used in the experiments tabulated, but in all cases the dose used was not far from the minimal lethal vein dose.

TABLE 5

ABSORPTION OF AMORPHOUS STROPHANTHIN FROM THE CAT'S
ALIMENTARY CANAL
BY STOMACH

	Dose Mgs. Per Kg.	—Duration—		Per Cent. Dose Absorbed.	Per Cent. Fatal Vein Dose Absorbed.
		Hours.	Minutes.		
A.	0.2	4	17	35	40
B.	0.2	4	55	12	15
C.	0.2	4	5	17	20

BY RECTUM

D.	0.2	4	1	15	17
E.	0.2	3	10	20	23
F.	0.2	4	26	0	0

Table 5 shows that the absorption of amorphous strophanthin is very irregular, varying from none from the rectum of "F" to 40 per cent. of the fatal vein dose in the case of "A," but even this series does not show as great irregularities in the absorption as we have found in previous experiments. The dose of amorphous strophanthin used in these experiments is but little above the minimal lethal vein dose.

SUMMARY

The absorption of many of the digitalis bodies and of strychnin from the alimentary canal of the cat into the general circulation is very variable. But strychnin may

be absorbed at times from the full stomach quite as rapidly as from the subcutaneous tissues.

Alcohol and perhaps other mild irritants favor the absorption of crystalline ouabain from the alimentary tract.

There is no general ratio of absorption of drugs from the stomach, rectum and subcutaneous tissues, and we are in urgent need of accurate observations of the rate of absorption of different drugs after various modes of administration.

There is a particularly urgent need for the investigation of the various digitalis bodies.

I am indebted to Dr. J. G. Brody for the care and patience with which he has carried out many of the experiments tabulated.

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STUDY OF SOME CASES OF ACUTE OTITIS
MEDIA, SEEN IN CONSULTATION*

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If the better class of general practitioners in Baltimore is typical of their associates in other cities, it is evident that appreciation of early ear troubles is keener than it was a few years ago. Physicians are learning that the welfare of the ear or, possibly, the issue of life and death, depends on the diagnostic acumen of the man who first sees the case. The lesson which specialists have been trying for so long to impress on general practitioners is being taken home at last.

During the past few years consultations regarding a possible otitic origin of systemic conditions have greatly increased. These consultations have developed a number of facts which, I have thought, might furnish a basis for profitable discourse: hence the presentation of so trite a subject as acute otitis media.

I. PRIMARY OTITIC INFECTION

The general belief in regard to otitis media, taught in text-books and unquestionably largely correct, is that the ear becomes involved as a sequel to infection elsewhere. Among these infections is that great waste-basket, grip. After a few days of fever, malaise, with no definite symptoms of anything, the patient, if a little child, puts the hand to the ear, thus calling attention to it, and examination reveals otitis media. Again, there is complaint of pain, followed in a few hours by discharge: or otorrhea is the first observed ear symptom. Diagnosis of grip, with secondary otitis media, is satisfactory to the physician, and, maybe, to the aurist, too. It was to me until the care of some medical friends in diagnosis taught me otherwise.

To justify the diagnosis of primary otitic infection we would have to find: first, systemic evidence of infection; second, objective evidence of ear disease; third, absence of all local or general disturbances capable of producing ear complications; fourth, relief of constitutional symptoms and restoration to health by treatment confined to ear drainage. Pain is such an overshadowing symptom of otitis as to be practically the only one of which the physician takes cognizance. But pain in a child, too young to tell about it, is easily overlooked. Another still more significant thing is that pain is by

* Read before the American Otological Society, at its Forty-third Annual Meeting, Washington, D. C., May 3 and 4, 1910.

no means invariably present in otitis media. Hence, if primary otitic infection is a reality, if it is capable of producing systemic infection, it is our duty to urge on the internist the necessity of including the ear in a routine examination for the cause of such symptoms.

The manner in which the infection reaches the ear without manifesting its presence elsewhere is interesting, and, possibly, not difficult of explanation. It is well known that infectious organisms of various kinds, virulent and innocent, stay in the nose and nasopharynx for a long time, producing no results. They could easily reach the tympanum and manifest themselves there. Again, it is conceivable that they could come through the circulation. The important clinical feature, however, is that this otitic infection does not always show itself in the orthodox order of exciting cause, pain, and other subjective symptoms before the discharge makes diagnosis certain. Without them, nothing but routine examination of the ear by a physician who has qualified himself to make it, can demonstrate the cause of general illness. If he appreciates the meaning of injection of malleus-handle vessels, redness of Shrapnell's membrane, or even knows that the ear can be primarily infected, and calls in a consultant, the diagnosis is easy. In a number of cases with such symptoms and objective evidence of otitis media, I have found slight impairment of hearing, lateralization by Weber's test, and have seen recovery follow incision of the membrane. In one case last year, that of a boy of 10, without pain, temperature of 104 F., and slight redness and bulging of the supero-posterior angle of the membrane, a single drop of streptococcus pus was evacuated, followed after a day by discharge. Symptoms were dispelled by the incision.

II. DELAYED APPEARANCE OF OTITIS

Akin to primary otitic infection are the delayed ear complications of various diseases. I allude to otitis media, sequel of infectious diseases, but removed from the causative disease long enough to throw doubt on causative relation. Either there is latent tympanic infection after the acute disease, or a new ear infection. For instance, a child has measles and passes through the attack without ear symptoms. Two or three weeks later, without other symptoms, and when recovery is seemingly complete, otitis media develops. Such cases, I believe, are not particularly uncommon, after measles and grip. In a few which I have seen there was the typical order of pain, fever and otorrhea, unless the case was seen before perforation. In others, sudden return of fever was the only symptom, and otitis was found because the physician looked for it or had it looked for.

Latent infection of the middle ear shows itself, too, in another way: apparent recovery of acute otitis media, with later mastoid symptoms. I brought this subject before the Section on Laryngology and Otology of the American Medical Association, in 1901, and have seen several cases since. One will suffice. A man of 48, after exposure in riding on the front seat of an electric car, developed pain in the right ear, with temperature of 102. He was seen by his physician, who found nothing but fever and ear pain. The drumhead presented all the indications for incision, but operation was refused. Two days later the physician reported that otorrhea had appeared, with relief of pain and fall of temperature. Soon I learned that hearing for the watch was normal and the patient entirely recovered. He went along with his business for seven weeks, when he was seized, while at his office, with severe earache. Mastoid symptoms developed rapidly, and on operation after

twenty-four hours the antrum and cells were found necrotic and full of pus. The easiest explanation seems to be that infection went to the mastoid at the first illness: but why it was so long in causing symptoms, or why the patient was apparently well for seven weeks, with disease progressing in the mastoid, is not so easy to explain.

Such cases have one important bearing on every-day otology. I believe that we all see cases of deafness following infectious diseases, without history or gross evidence of inflammatory otitis. There is nothing in the patient's condition to account for it. Fork tests show that it is due to middle ear disease. Inference seems justifiable that the acute disease left otitic infection not sufficiently virulent to cause immediate symptoms, but capable of doing one of two things: slowly breaking down tissue through spread of infection, or keeping up a constant hyperemia, leading to exudate, and so bringing about sclerotic changes in the tympanum. Among the facts we should try to impress on general practitioners are the following: that these latent ear infections are frequent; that their ultimate results are uncertain; that the tympanum is in the natural path of danger, just as the lungs are; and that the patient should not be dismissed as well until adequate ear-examinations have been made. In a few cases brought me by physicians after measles, scarlet fever, grip and the like, I have found interference with Eustachian function, and definite fork evidence of middle-ear deafness. Men should know from us that this is the time to save hearing.

III. PROLONGED REMITTING FEVER: DIAGNOSIS

A feature which often puzzles not only the physician but his consultant, is the meaning of prolonged fever in a seemingly light case of otitis media. During or after an infectious disease, otitis media develops. Maybe the membrane is incised; again it is allowed to ulcerate. The patient recovers from the original trouble, and to all appearances, from the ear complication. Pain disappears, the discharge lessens or ceases, hearing improves. Yet fever continues. If it is due to the ear it is our duty to get complete drainage: if not, the physician wants to know. It is a question of diagnosis which may, on the one hand, involve mastoid operation, not for mastoiditis but for tympanic drainage, and at the same time we must be careful not to operate on a patient for ear sepsis when he has something else.

Brief notes of three cases are appended.

CASE 1.—A man of 35 developed acute otitis media after rhinitis. Pus was found after membrane incision. Two days later, mastoid tenderness developed. Temperature for the first week is given in Figure 1. On the fourth day the patient was sent to the hospital, as mastoid operation was thought probable. Local symptoms were less pronounced the day after, and almost disappeared in another twenty-four hours. For the next three days the patient had a steady fever, without remissions. His physician, Dr. Charles W. Mitchell, was unable to determine its cause, if the ear and mastoid were excluded. Three factors in the case led me to exclude them: (1) steady improvement in local symptoms, and their total disappearance after a week; (2) character of the fever line; and (3) a leucocytosis of 4,000. Typhoid fever was thought of; but it was the sixteenth day before rose spots were found, and positive Widal was obtained only toward the close of the fourth week.

CASE 2.—This shows how easily a specialist can overlook a concurrent lesion. A healthy, athletic man of 29, without previous illness, was attacked early Saturday morning with a chill and right earache. He fought it out alone all day, but on Sunday called in an aurist, who found a temperature of 104 F., with objective evidence of acute suppurative otitis media. For

reasons I did not discover, he postponed incision until Monday afternoon when it was done at a hospital under chloroform. To Wednesday night temperature ranged about 102 without remission. Further operative procedures were then considered; but a consultation was asked by the family. I saw the case Thursday afternoon. That morning, six days after the initial chill, temperature had dropped to 97.5. I found the ear dry, and no evidence of mastoiditis. The outcome of the case was that the man was allowed to continue an uninterrupted recovery from an unrecognized, limited, right pneumonia.

CASE 3.—Temperature chart of a third case (Fig. 2) is given by way of comparison. The patient was a girl, aged 12, who developed left acute otitis media after apparent recovery from uncomplicated measles. She had been kept in the house and for the most part in bed for the eight days before ear trouble was found. Her physician, Dr. Mitchell, found it in routine examination for relapse of fever. She had nothing directing special attention to the ear. When called in, I found definite left suppurative otitis, without perforation, while the drum-head of the right was congested. Leucocyto-sis was 16,060. After left myringotomy, which I did at once, temperature fell from 104 to 101.6, and stayed there two days. Then the right drum-head was incised, though there was no pain. For the next five days there was remitting fever. On the fifth the left mastoid was tender to pressure, but no pain otherwise. I asked Dr. Harry Friedenwald to see the case with me, and we decided that symptoms were not sufficiently urgent for mastoidectomy,

of septic type, and profuse purulency. Chills, sweating, extreme variations in temperature (105 and upward, to subnormal), profound exhaustion—the things which lead us to uncover the sinus—are absent. The cases drag themselves along for weeks, with about such a temperature line as given in Case 3, without pain, and copious with purulent discharge. When they come to operation, extensive disease is found in the mastoid walls. A question I should like to hear discussed is: What is the line of demarcation between the safety of tympanic, and necessity for mastoid, drainage? Is there anything, outside of time and profuse discharge to guide us?

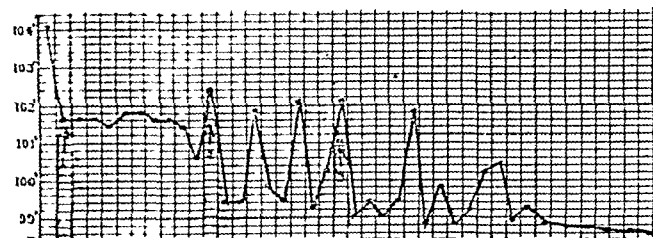


Fig. 2.—Temperature in double acute otitis media (Case 3), eight days after measles. First arrow point indicates incision of left membrane; second arrow point, incision of right membrane; third arrow point, second incision of left membrane.

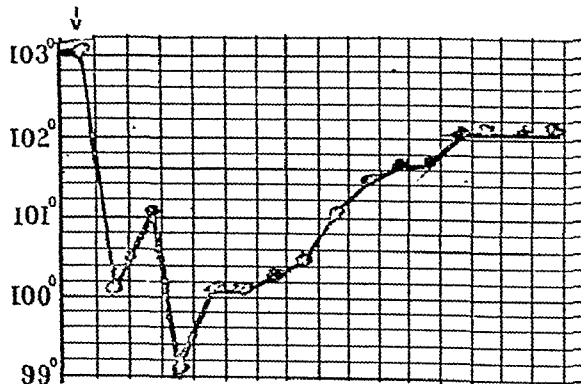


Fig. 1.—Temperature in otitis media with typhoid fever (Case 1) in first week. Arrow point indicates incision of drumhead.

and that the left drumhead, the one first incised, which had healed, should be incised a second time. After this, mastoid tenderness disappeared, and recovery, though slow, was uninterrupted.

The case illustrates (1) the delay which may ensue after disappearance of the causative disease before ear complications develop; (2) what I believe to be the characteristic of otitic temperature—in all essentials, that of a mild sepsis; and (3) the value of leucocyte count. When able, I have this count made in acute otitis media, and it rarely is below 15,000. Considerable observation of cases like these has led me to think that in the temperature line and leucocyte count we have pretty reliable guides regarding an otitic cause of systemic disturbances as distinguished from essential fevers. There is always the possibility of another lesion with the ear trouble.

There is another side to this matter. Sometimes we are compelled to do a mastoidectomy for drainage, though there are no symptoms of mastoiditis. Even when the process is painful on pressure, tympanic drainage is often enough. In deciding if mastoid drainage is needed I believe that the amount of the otorrhea is an important guide. There is nothing new about this, yet it is a guide often neglected. It is unnecessary to relate cases in which, without definite mastoid symptoms, operation has been done because of persistent fever,

IV. CONVULSIONS

I want, finally, to call attention to three cases of acute otitis media, which were new observations to me.

CASE 4.—The first case is that of an infant, 5 months old, whom I saw in consultation with Dr. Thomas R. Brown. At the age of 3 months the baby had measles, which left in its wake enlarged cervical glands. The week before I saw her, she had a transient, general vesicular eruption which Dr. Brown diagnosed as chicken-pox. Three days after the disappearance of the eruption, there was a convulsion, followed by stupor, lasting an hour or so. Rectal temperature was 103. Dr. Brown found a leucocyto-sis of 18,000 at his first visit. While he was in the house the child had a convulsion, with dilated

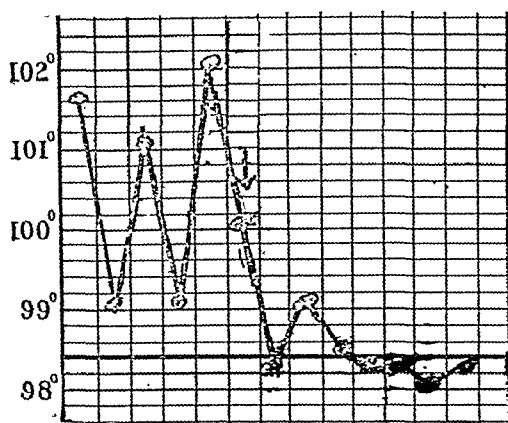


Fig. 3.—Temperature in otitis media, with referred pain (Case 6). Arrow point indicates myringotomy for scalp pain.

pupils, rigidity and unconsciousness. Dr. Brown examined the ear, and found, as he thought, redness and bulging of the supero-posterior angle of the membrane. I was called in at night. Temperature then was barely 100; the child was free from pain, took its bottle eagerly, and did not look sick. The right drumhead presented evidences of otitis media; but there was no bulging, and in view of the generally improved condition, I decided to do nothing till the next morning. At 8:45 a. m. I received a telephone message that the child was worse, had had two convulsions, and rectal temperature was 103. As soon as possible Dr. Brown and I reached the country home

of the patient's parents. The drumhead was now bulging in the supero-posterior angle, and leucocyte count was 24,000. Without anesthetic I incised the drumhead, continuing the incision into the canal wall. A very little pus was evacuated, and recovery was uneventful. At no time was there evidence of pain.

While this is my one observation of ear convulsions, I have known, as have all of us, of babies dying of supposed meningitis, with otorrhea toward the close. I can count a half dozen such cases in the families of friends, and learned of in conversation with physicians. The intimate connection between the tympanic and cranial cavities in infancy, through the squamo-petrosal suture, is probably sufficient explanation. The interesting fact, however, is that physicians are appreciating such possibilities.

V. REFERRED PAIN

The other two cases I have classified as "referred pain."

CASE 5.—The patient was a nurse, aged 24, at the Union Protestant Infirmary, who came to me on January 25 last for diagnosis. Two nights before I saw her she was awakened by severe pain along the anterior border of the sternocleidomastoid muscle, at least two inches below the tip. The slightest pressure here over an area of an inch in circumference was painful. Temperature was normal and no hearing defect could be found. The drumhead presented a normal appearance. Leucocyte count was 8,000. The patient was put to bed and given first salicylate of sodium, and later acetylsalicylic acid (aspirin), with little effect. Morphine was needed to secure relief from the strictly localized pain. The only pain in the ear proper was produced by brushing the posterior wall of the canal with a cotton pencil or touching it with a probe. Hearing for the watch gradually diminished, and in four days was only on contact. A loud whisper could then be heard at two or three feet, and fork test, Weber's, was lateralized to the bad ear. I could find nothing by inspection, save, possibly, increased blanching of the drumhead. Temperature during these five days did not go above 99.5. On January 31, on account of the falling off in hearing, I determined to incise the drumhead, which was done under nitrous oxid. The membrane cut like stiff parchment. Through the lips of the incision there escaped a few thin flakes looking like very thin bits of paper. They were lost in a drop of clear fluid which followed them and the little blood from the upper edge of the incision. The next day the patient heard the watch at 6 inches, and in a short time had normal hearing. Twice after incision, on February 1 and 2, temperature reached 101. This followed an attempt to syringe the little clot from the canal. The pain in the muscle was relieved at once by the incision of the membrane.

CASE 6.—Dr. Brown asked me to see with him Mr. W., a lawyer, aged 49, who had been first seen by Dr. Brown on the morning of March 21 for a slight right tonsillitis. It subsided after two days. Dr. Brown was summoned again early in the morning of the 24th for severe pain in the right parieto-occipital region. As seen by the chart (Fig. 3), there was a temperature of 101.6. I saw Mr. W. on the morning of the 25th. A mustard plaster had been applied, before Dr. Brown's visit, and the scalp was reddened. Pain came in paroxysms, the slightest movement producing it. It was confined to a limited area, at least 2 inches behind the meatus, the intervening space over the mastoid being free from tenderness or congestion. The drumhead presented the appearance of a mild catarrhal otitis. Hearing was normal for watch and speech. Because of the remoteness of pain from the ear, and normal hearing, I hesitated to connect the ear with the occipital pain. The patient was given an atropin and cocain solution to use during the day, but reported in the evening that he had had no relief. His temperature was 102, while the drumhead presented the same appearance as in the morning. Weber's fork test was lateralized on the affected side. In spite of morphine the patient had a wretched night, every movement of the head causing paroxysmal pains limited to this one spot in the scalp.

I saw him again at 8 a. m. on the 26th. He was prostrated by two sleepless nights, and accepted what I told him was a purely experimental incision of the reddened supero-posterior angle of the drumhead. His hearing was absolutely unaffected save for Weber's lateralization. Fair anesthesia was obtained by an alcoholic and oily solution of cocain (20 per cent.). Relief from pain was almost magical. As in the case of the nurse, the drumhead cut "stiff." There was some little hemorrhage, but no pus, so far as we could see. Recovery was prompt without impairment of hearing.

I presume that these referred pains were due to an unusual connection between the tympanic nerve and other branches of the glossopharyngeal through the petrosal ganglion.

I have thought these observations in acute otitis media of sufficient interest to put on record. Behind them, however, is the fact that but for the thoroughness of diagnosis on part of the internist, the cause of the fever, convulsions, pain would not have been determined. Improved attitude toward ear troubles on part of our medical associates has brought about a definite change in our practices; at least, in mine. In private work chronic suppurative otitis media, of which years ago I saw so much, is rare. Even acute otitis media, allowed to go on to ulceration of the membrane is not very frequent. But constitutional symptoms due to ear disease, without gross evidences of the latter, are more common. The moral of it all is that aurists must be good enough physicians to make differential diagnoses.

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THE CLOSE RELATION OF THE DENTIST TO THE PHYSICIAN*

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More intimate cooperation between dentist and physician would be beneficial alike to the patient and to the profession. Dentistry is a specialty of medicine; the stomatologist, with a broad knowledge of general medicine and a particular training in his own field, is exactly on a par with the oculist, the laryngologist or the obstetrician. Thorough knowledge of the principles of medicine must underlie all successful treatment of disease, and the patient must be regarded as an individual, not a collection of separate organs, each to be treated alone. Since one region of the body cannot be isolated from the entire organism or separated in its development, nutrition, function or diseases, neither can its treatment be a separate matter. The person attempting to treat one part of the system must understand the whole, at least broadly, in order to apply general pathology and therapeutics to his particular part. With this intelligent survey of the whole field, the dentist can be a most efficient factor in the prevention of disease and in its successful treatment. A fuller appreciation of their mutual interests would bring the family physician and dentist more often together in their work.

Many cases of general asthenia, malnutrition and anemia under medical treatment are primarily due to oral causes; and not all the tonics in the Pharmacopeia will suffice to cure the patient who cannot chew his food, or who is constantly swallowing bacteria and their products from conditions of oral sepsis, such as dental caries and pyorrhea. In daily practice these unfortunate patients are a trial to their physician, who seldom

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

accomplishes much toward permanently relieving their state of health until he examines the source and not the sequel of the symptoms, and insists on proper treatment of the mouth and teeth. The careless doctor, who hastily writes a prescription for pepsin for the dyspepsia, cascara for the constipation, or iron for the evident anemia in such a case, will be disappointed in the results of his treatment unless he goes much farther and seeks and removes the cause of the trouble. Consultation with an able dentist will often save the patient great expense and much depreciation in health, and prove the real way to recovery; whereas months of desultory medical treatment alone would bring only trifling and temporary improvement of symptoms—to the disgust alike of the patient and physician, who often part company at this stage with a feeling of mutual relief. The busy physician dismisses the matter from his mind with the thought that “there’s no satisfaction in treating these chronic cases that are all run down,” while the patient either plods along on a lower level of efficiency than he should be occupying, or suffers still further from the natural development of his morbid state. After a time secondary conditions arise. Chronic nervous and mental disturbances may appear, neuralgia, insomnia and the various fatigue neuroses, leading, in neglected cases, even to a complete physical and mental breakdown.

A fair review of these cases shows that the terminal symptom-complex was rendered possible by the low vitality of the patients, that is, by anemia and malnutrition, due to a chronic indigestion caused by imperfect mastication due to faulty teeth. Therefore, the logical early treatment was dental rather than medical; and the family physician should have pointed this out. Among his many mistakes, the sins of omission are not the least important.

Still more is this true in the case of children, in whom neglect of proper dental treatment leads often to defects of growth that become irremediable. Living proofs of this are to be seen on every hand, but even yet are not receiving the attention they merit. Take for example, the numerous cases of nasal obstruction, with adenoids, enlarged tonsils, and often recurring catarrhal inflammation with or without extension to the frontal and maxillary sinuses, or the Eustachian canal and middle ear or mastoid cells. How many physicians or general surgeons realize the advantage of cooperation with the dental surgeon in the treatment of these children? It is not enough to tell the parent to have the child’s teeth attended to and his tonsils and adenoids removed. In too many instances this does not end the trouble. The narrow arch and nostrils and high palatal vault with deflected septum will maintain the habit of mouth-breathing; the pharynx and mouth will be dry and irritated; the larynx, trachea and bronchial tubes will be injured by the rapid inhalation of unwarmed, unfiltered air, and danger to the lungs may ensue. As the child attempts to overcome his mouth-breathing habit, he is obliged to breathe more slowly and less deeply than normally through his nose, and suffers from the diminished supply of oxygen. His impeded respiration requires an increased action of the voluntary respiratory muscles and leads to faulty growth of the chest wall resulting in protruding sternum and scapulae, high shoulders and spinal distortion, while his whole respiratory condition impairs his vitality and favors the onset of disease, colds, catarrhs, deafness, mastoid disease, quinsy, tonsillitis, rheumatism, diphtheria, scarlet fever and tuberculosis. And this is not all. The child of

this type has a narrow arch, too small to accommodate his permanent teeth. As these are erupted, the crowded teeth may give rise to much prolonged pain and nervous disturbance which the undervitalized child is ill able to bear. With his irregular teeth he cannot masticate his food properly, and again his nutrition suffers. Deprived of abundant oxygen and digestible food-supply, he becomes the easy prey of the diseases of adolescence. The remedy is plain, namely, proper combined dental, surgical and medical treatment early in the case, and continued long enough to correct the deformity.

The surgeon and the dentist may well work together in the treatment of fractures of the jaws, in which the dentist can make a splint for retaining the fragments in position until bony union occurs, much more satisfactory than the one the surgeon is likely to buy or devise for himself. Even in the surgery of the cranial vault, a closer association of surgeon and dentist would benefit the patient, the dentist’s familiarity with the dental engine enabling him to cut with delicacy and precision in places where the ordinary trephine or chisel would be most unsatisfactory and hazardous. So also with the drilling of holes for nailing or wiring bony fragments in fractures of the long bones, the drill operated by the dental engine being far superior to any hand drill or to the hammer and nail which too often splinter the bone. In some orthopedic work, the dentist, with his greater knowledge of mechanics and skill in the use of metals, could often help much in the adjustment of splints and appliances.

In various suppurations about the head and neck, the surgeon is often at a disadvantage without consultation with his dental confrère. Antral disease of nasal or dental origin, parotid or submaxillary abscesses, swollen or suppurating cervical lymph glands, periostitis or necrosis of the maxillae may be due, more or less directly, to faulty dental conditions—a fact which the surgeon is apt to overlook, but which is readily apparent to the dentist. The more obscure cases of neuralgia (so-called) will sometimes require the united efforts of dentist and physician to illuminate their etiology and direct their successful treatment.

Another line in which the physician and the dentist may help each other is the giving of anesthetics. Few general surgeons are fully acquainted with the many advantages of nitrous oxid and not only omit to use it when operating themselves, but advise patients not to take it, even for dental operations. Such advice must result from a meager knowledge of its effects, and cannot be other than detrimental to the patient’s interests in many operations in which anesthesia is required for but a short time. For prolonged operative work the combined use of nitrous oxid and oxygen gives a satisfactory anesthesia in most patients, especially in those with chronic bronchitis, valvular heart disease or some other contra-indications for either chloroform or ether. The ease and rapidity with which the patient is put to sleep, the safety with which that sleep may be prolonged by giving oxygen with the nitrous oxid and the quick awakening to consciousness, usually without nausea, render this method of anesthesia an ideal one for many dental and surgical operations, although there are certain drawbacks to its use. It is more expensive than chloroform or ether, less readily obtained away from large cities, less easily kept on hand for emergencies and less easily carried and handled, outside of the office or hospital. On account of his better training and wider experience with this anesthetic, the dentist may properly be called on to administer it for surgical oper-

ations, just as the physician is asked to give ether or chloroform for dental operations. In any operation requiring a general anesthetic, neither surgeon nor dentist should be willing to operate without the assistance of a competent anesthetizer who can take full responsibility for the patient's condition.

In conclusion, the interests of the patient would be furthered by consultation between the physician and the dentist, not only in occasional operations and in special cases of injury and deformity, but in many conditions of acute and chronic disease. An intelligent acquaintance with each other's work and a friendly understanding of mutual respect between the members of the profession is greatly to be desired.

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ABSTRACT OF DISCUSSION

DR. LEE WALLACE DEAN, Iowa City, Iowa: No physician should ever remove in a child nasal or postnasal obstructions without sending that child to the dentist; if he does so he does an injury to his patient. The teeth I know but little about, but I do know that they may look all right to the physician when they may be too close, or there may be other conditions which will cause that child trouble in years to come. I do know that practically every child that has adenoids or postnasal obstruction removed has some irregularity or disturbance of the teeth. In my clinic I find there are few cases of postnasal obstruction in which there is not some disturbance that the students can detect. Every one of these children coming into my hands is sent to the dentist. I regret to say that the great majority of them do not get to the dentist; I have done my duty. No rhinologist is ever justified in removing turbinate tissue from a nose to secure breathing-space, so long as there is a chance for that breathing-space to be secured by the dentist.

It seems to me that the dentist should refer cases to the rhinologist. All patients with irregularities of the teeth should be examined for nasal and postnasal obstruction. Many cases of caries of the teeth might be influenced by mouth-breathing at night, and the dentist might be wise if he would send these patients to the rhinologist to see if there was a condition that might result in mouth-breathing at night.

THE SYMPTOMATOLOGY AND DIAGNOSIS OF MENINGITIS OF OTITIC ORIGIN*

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This subject has been so thoroughly discussed during the past few years that it would seem presumptuous for me to attempt to add any new facts. I can only hope, therefore, to present the matter in the manner in which it has been brought to my attention from the observation of a rather large number of cases.

We may classify meningitis of otitic origin as (1) circumscribed meningitis or epidural abscess, (2) serous meningitis, and, (3) purulent meningitis.

Of the symptomatology of circumscribed meningitis, very little need be said. In most cases, the diagnosis of this condition is made on the operating table. A circumscribed pachymeningitis is an effort on the part of nature to prevent general infection of the subdural lymph sac; in other words, to prevent a diffuse, purulent meningitis. The only symptoms which these patients present are localized headache in the region of the puru-

lent collection, and a slight elevation of temperature. These symptoms, occurring in the course of an acute otitis media, whether or not they be complicated by evidences of mastoid involvement, are sufficient to warrant the surgeon in suspecting incipient meningeal involvement. In quite a large proportion of my own cases, I have been able, from these symptoms alone, to make a diagnosis of a localized pachymeningitis. As before stated, however, a localized collection of pus, lying between the dura and the bone, is frequently found at the time of operation on the mastoid, without any suspicion of its existence, on the part of the surgeon prior to the time of operation. While these cases are frequently not considered under the head of "otitic meningitis," on account of the extremely indefinite symptoms which are presented, it seems to me that they deserve more than passing attention. Given a case of acute inflammation of the middle ear or of a chronic inflammation of the middle ear, with an acute exacerbation, in which the patient complains of localized headache, rather than of severe pain in the ear or pain in the mastoid, and localized tenderness either in the post-mastoid region or just above the zygoma, we are, I believe, warranted in suspecting that the inflammatory process has extended beyond the limits of the mastoid, and that it has already involved either the cerebellar fossa or the middle cranial fossa.

Aside from these symptoms of moderate temperature elevation and localized headache, together with local tenderness, I know of no means of making a diagnosis of this condition. But, given these symptoms, I believe that it is always wise for the operator in exploring the mastoid, to consider seriously the exposure of the dura in the middle cranial or cerebellar fossæ, as a final step of the operation.

THE SEROUS AND PURULENT FORMS

The second and third division of the subject are of much greater interest—that is, cases of serous meningitis or diffuse purulent meningitis, following inflammations of the middle ear. Whether the inflammation of the cerebral membranes is serous or purulent depends very largely on the virulence of the infecting organism. It is probable that a serous meningitis is invariably present in the early stages of a purulent meningitis. If the resistance of the patient is sufficient to combat successfully the constitutional infection, the subdural effusion remains serous. If, on the other hand, the infection is severe, the subdural space is invaded by the micro-organism and a purulent meningitis is the result.

We know from post-mortem examinations that the most frequent avenue for the transmission of infectious material from the middle ear to the meninges is through the labyrinth, either directly through the internal auditory meatus, or through the aqueductus vestibuli or aqueductus cochleæ.

Lermoyez,¹ in his admirable article, says that in 65 per cent. of all cases of otitic meningitis, the invasion takes place through the internal ear. In the remaining cases, the infection of the cerebral membranes takes place by continuity of structure, either in the middle cranial fossa, or in the cerebellar fossa, either directly or through the lateral sinus.

DIAGNOSIS

In cases of suspected meningitis of otitic origin, therefore, an early investigation should always be made for evidences of labyrinthine involvement. The patient should

* Read in the Section on Laryngology and Otology of the American Medical Association at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Tr. Eighth Internat. Otol. Cong., Budapest, p. 4.

be carefully examined for any disturbance of equilibrium, such as a staggering gait when walking with the eyes closed. This examination can be made only in the very early stages of the disease. The eyes should also be examined for nystagmus. In the early stages of a labyrinthine involvement, this nystagmus may occur either toward the affected side or toward the healthy side. As the labyrinthine lesion progresses, however, the nystagmus toward the affected side disappears and the nystagmus toward the healthy side becomes marked, this symptom being an evidence that the affected labyrinth is paralyzed. An investigation of the labyrinth should, when possible, be made, both by the turning test and by the caloric test, in order to determine the exact condition of the labyrinth, and to discover the true significance of the nystagmus. It should also be remembered, in cases of meningitis involving the vestibular nerve, that a nystagmus toward the sound side, indicating a paralysis of the affected labyrinth, may later disappear and a nystagmus toward the affected side make its appearance. This is positive evidence of a retrolabyrinthine lesion—that is, of a lesion either in the cerebellar substance or in the meninges in the immediate vicinity of the vestibular nerve.

In cases of otitic meningitis, in adults, an examination of the hearing is of considerable importance. It is hardly possible to have the vestibule involved, to any extent, without having considerable involvement of the cochlea. For this reason, the appearance of sudden and profound deafness in a case of middle-ear suppuration, particularly if associated with vestibular symptoms—should always lead the surgeon to suspect a beginning meningitis.

Involvement of the cochlea ordinarily manifests itself: first, by profound deafness, second, by loss of bone conduction, and third, in the failure of perception of the high notes of the musical scale. As invasion of the cochlea in these cases ordinarily occurs directly from the middle ear, it is easily understood why this perception of the highest tones of the musical scale should be lost, since that portion of the cochlea nearest the tympanum is concerned in the perception of these high notes.

Many authors speak of the occurrence of facial paralysis as a symptom of considerable importance, and one which should lead the observer to fear a beginning meningitis. While at first this seems plausible, it has not been borne out in my clinical experience. For instance, I have seen a large number of cases of facial paralysis occurring in the course of middle-ear suppuration, in which the patient never exhibited the slightest evidence of meningitis. Many of these cases have been followed for a long period of time, so that, had any meningeal symptoms developed, they would certainly have been recognized. Naturally, I am here referring to the cases of facial paralysis occurring in the course of the suppuration, and not to those dependent on traumatism at the time of operation.

It is probable that a serous meningitis is almost never fatal. In my experience, I can remember but one case in which, though the cerebrospinal fluid remained sterile, a fatal outcome followed. It is likely that in the first stage of every meningeal inflammation, we have a serous effusion in the subdural space, and, in some cases, into the lateral ventricles as well. If these spaces become invaded by the specific microorganisms, then a purulent meningitis follows. If, however, such infection does not take place, the serous effusion is gradually absorbed and recovery occurs.

Certain surgical and therapeutic measures are unquestionably of value in this serous stage, and these will receive proper attention at the hands of my distinguished colleague, Dr. Mygind, who is to speak on the treatment of otitic meningitis. As the symptoms of the serous form of meningitis pass, with almost imperceptible gradations, into those of the purulent form, I shall not attempt to make any distinction in the symptomatology.

COURSE

The course which a purulent meningitis may run, may be divided into two types:

1. The rapid or fulminating type.
2. The slow or progressive type.

In the fulminating type of meningitis we have very few symptoms. The disease runs its course with great rapidity, and may cause death within a few hours.

CASE.—In a case observed some time ago, the patient, a child of about 4 years, had suffered from a double acute otitis media for about ten days before I saw it. At the time the patient was first seen, both ears were discharging slightly, a myringotomy having been previously performed on both sides. Both drum membranes were at once freely incised, this procedure being followed by a fall in temperature and a more profuse discharge. The patient up to this time had exhibited no cerebral symptoms, although there had been an elevation of temperature from 102 to 104. Three days after I first saw the patient the temperature suddenly rose to 105.5, and both mastoids were opened. A considerable amount of softened bone was found on each side. Owing to the sudden, abrupt rise in temperature, both lateral sinuses were exposed, as it was thought possible that there might be a thrombosis of the lateral sinuses. Both sinuses were found normal, and, consequently, were not opened. The child rallied immediately after the operation, but twelve hours later the temperature began to rise slowly, the pulse became poor and rapid, the child gradually sank into unconsciousness, and died in about thirty-six hours after the operation. The infection, in this case, was a pneumococcus, and, although no autopsy was permitted, the diagnosis of a pneumococcus meningitis was made.

I have seen cases of this kind occasionally, and they certainly present a distinct type of the disease.

SYMPTOMS AND DIAGNOSIS OF PROGRESSIVE MENINGITIS

When we come to the consideration of the slow or progressive type of meningitis, we have certain symptoms which aid us in our diagnosis. In adults, in the severe cases, headache is a prominent symptom. This is usually severe in character, and is general rather than localized. Vomiting also occurs in a large proportion of cases, and this vomiting is ordinarily preceded by constipation. The temperature is a valuable indication. In the severe cases the temperature is ordinarily considerably elevated, rising quickly to 104 or 105, and seldom dropping more than a degree or a degree and a half below this level. In the milder cases of meningitis—that is, probably, during the serous stage of the inflammation—the temperature may not be so much elevated. I have seen a number of cases in infants run their entire course and terminate fatally without the rectal temperature rising above 103 until just before death. It has been my experience that the cases in adults run a very much higher temperature than do the cases in infants, this being exactly the reverse of what would be expected. It has also been my experience that vomiting is a rather more common symptom in adults than in infants.

NEUROMUSCULAR SYMPTOMS

Localized neuromuscular symptoms may appear early in the course of the disease, and this applies both to the serous and purulent varieties. These neuromuscular

symptoms affect usually the ocular muscles. In the early stage of the disease, we ordinarily have a contraction of the pupil on the affected side, and not infrequently have a paralysis of the sixth nerve on the corresponding side, leading to an internal strabismus. As the disease progresses, the contraction of the pupil disappears, and, owing to a partial paralysis of the third nerve the pupil becomes gradually dilated. While the paralysis of the sixth nerve is ordinarily confined to the side of the affected ear, I have seen an abducens paralysis of the opposite side. This, of course, is easily explained from the fact that the apices of the petrous pyramids lie in close proximity, and a meningeal inflammation may easily extend across the median line, and involve the abducens of the opposite side, although the abducens of the affected side may escape.

Stiffness of the neck is one of the earliest neuromuscular symptoms met. This ordinarily occurs both in children and in adults, in the very early stages of the disease. In infants, I look on rigidity of the neck as one of the earliest symptoms of a meningitis, especially if this sign is associated with an elevation of temperature.

REFLEXES

The patellar reflexes are usually increased, the exaggeration being more marked usually on the affected side, in the early stages. The Kernig sign is usually present, and in a number of cases I have been able to elicit the Babinski sign early in the course of the disease.

MENTAL CONDITION

In adults, the mental condition of the patient is of considerable significance. In the early stages, there is frequently a mild delirium, this condition passing into coma as the disease advances. In children, instead of delirium, we may have general convulsions, although, in my experience the occurrence of convulsive seizures is rather rare in an otitic meningitis.

THE BLOOD

The examination of the blood is sometimes of value. In cases in which a differential blood-count has been made, I have usually found a high leucocytosis, and a decided increase in the polymorphonuclear percentage. In most of the cases the polymorphonuclear proportion has been between 85 per cent. and 90 per cent. Whenever, as the result of therapeutic or operative measures, a temporary improvement has taken place, this has always been followed by a fall in the polymorphonuclear percentage. It seems, therefore, that the differential blood-count, in these cases, is a valuable aid in diagnosis.

THE CEREBROSPINAL FLUID

The most certain and convincing evidence which we have of the presence of a meningeal inflammation is the information derived from a lumbar puncture. This puncture should always be made early in doubtful cases, and may be repeated as frequently as is necessary. In most instances, the cerebrospinal fluid will be found to be under considerable tension. In cases in which there is a great increase in the amount of the cerebrospinal fluid, on lumbar puncture it will be forcibly expelled from the exploring needle. I have seen the jet rise several inches above the opening in the needle, with the patient in the prone position. The physical character of the cerebrospinal fluid is naturally an aid to diagnosis. If there is a clear fluid which, on microscopic examination shows no micro-organisms and few or no leucocytes,

we have to deal with a serous meningitis. If, however, the fluid is cloudy or turbid, and contains a large number of broken-down leucocytes, particularly of the polymorphonuclear variety, and also contains micro-organisms, we have to deal with a purulent meningitis. It should be remembered that an increased amount of serous fluid in the spinal canal may not, of necessity, mean an inflammation of the cerebral membranes. Such an increase in the cerebrospinal fluid is found in cases of neoplasm within the cranial cavity, and in cases in which the cerebrospinal fluid is germ-free, and contains no pus-cells, the possibility of an intracranial neoplasm should always be borne in mind.

The character, then of the cerebrospinal fluid is, perhaps, the most important element in diagnosis. If we have to deal with a fluid free from germs and containing no pus, we know that we are dealing with a meningitis in its early stages. It is probable that in cases of this character simple relief of pressure and a thorough eradication of the focus of infection will be sufficient to effect a cure. In cases in which the cerebrospinal fluid contains one of the various micro-organisms so frequently found, such as a pneumococcus, streptococcus or meningococcus (*diplococcus intracellularis*), very radical surgical measures must be taken in order to give any hope of relief.

OCULAR SYMPTOMS

An examination of the fundus oculi will, in many cases, show the presence either of beginning or of well-marked choked disc. These changes in the optic nerve are common to all cerebral lesions, accompanied by an increased intracranial pressure. While, therefore, the swelling of the optic papilla with dilatation and tortuosity of the veins cannot be regarded as in evidence of meningitis, but simply as a sign of some intracranial complication, the occurrence of this symptom, in connection with the other symptoms already mentioned, will, of course, be a valuable aid in confirming the diagnosis. The ocular changes may occur on either side, but are most commonly found on the side corresponding to the ear involved.

CONCLUSION

I regret that I have been able to add so little to the knowledge of the subject at hand. I have simply stated the results of clinical experience. It has appeared to me in the course of my observation of cases of meningitis, that the earlier we can make the diagnosis, the better will be the prognosis. In other words, if the symptoms of meningitis are recognized early, the surgeon by prompt interference may be able to prevent the disease from passing beyond the serous stage, and, in some cases, in which an actual infection of the subdural space has occurred, may be able promptly to remove the source of infection and to effect a cure. The longer the duration of the case, however, the more grave the prognosis. Therefore, as stated above, my own observations have led me to believe that the cure of an otitic meningitis depends on its early recognition.

15 East Fifty-third Street.

"Piano-Key" Dislocation of the Outer End of the Clavicle.—An illustrated study of this condition is published by F. Dominguez in the *Revista de Med. y Cirugia*, 1910, xv, 333. It is based on three cases from his personal experience, the only ones of the kind he has ever encountered and all within three months. A wire suture is required to hold the end of the clavicle permanently in place.

THE INDICATIONS FOR SURGICAL INTER-
FERENCE FOR THE RELIEF OF
OTITIC MENINGITIS *S. MACCUEN SMITH, M.D.
PHILADELPHIA

On account of the apparently increasing prevalence of otitic meningitis, especially in children, due, no doubt to our greater ability to recognize the disease, the subject is of the utmost importance, not only to the aurist, but more especially to the physician of general practice, since he is usually the first to be consulted in the initial illness. The questions pre-eminent, therefore, for our consideration are (1) the establishment of a prompt diagnosis of otitic meningitis, still replete with difficulties; and (2) the adoption of immediate measures for its relief, an accomplishment even more perplexing than the first.

As all scientific attainment, however, is developed by slowly progressive steps, judging from the progress of the recent past, we have every reason to feel encouraged in the belief that, in the very near future, we shall have reached the goal whereby our ability to diagnose this disease promptly will be unfailing, and furthermore, the technic of surgical intervention will have become so thoroughly mastered that a favorable prognosis may be the rule, instead of the exception, as to-day. The optimistic picture here drawn for the future seems almost heresy in contrast to the pessimism manifested by the profession in the past, or even at the present time, and yet I must be insistent in asserting the belief that this outlook is only as bright as the expectant and progressive future has every right to expect, especially if the original work of Jansen, Neumann and others is to be emulated by our colleagues.

Please note the emphasis and importance I wish to place on the words "prompt" and "immediate" in their connection with the diagnosis and treatment of otitic meningitis, for, without proper appreciation of their application in this disease, the ravages of the past on human life must be perpetuated indefinitely. In consequence of the present demand, we now yield to the collective opinion that our only means of successful intervention lies in operative interference, and I will endeavor to mention the various surgical procedures incident thereto, in compliance with my obligation to this part of the symposium assigned me.

On account of the symptom-complex which so frequently confronts us, and our consequent inability to differentiate between meningitis and encephalitis, I must agree with Körner (and this is confirmed by my limited post-mortem opportunities) that the actual condition is best characterized by the term "meningo-encephalitis" instead of the word "meningitis," and surely this does not overstate its gravity in the more severe type of this disease.

If we accept the theory that serous meningitis, as demonstrated by Quincke's lumbar puncture, is simply an increase in the amount of cerebrospinal fluid; we have a plausible explanation of the fact that in so many cases of this particular type the patients recover, when the condition is properly diagnosed and the fluid drained surgically. Furthermore, if we agree that serous meningitis is the first stage of the suppurative form, it being most difficult to determine where one ends and the other

begins, we have additional reason for an early lumbar puncture, which must be followed promptly by more thorough drainage, if the symptoms are not relieved by the former.

Some serous cases presenting typical meningeal symptoms with a normal fluid under high pressure have also a circumscribed purulent leptomeningitis, the toxins giving rise to an increased cerebrospinal pressure, but not altering the fluid's physiologic consistency; here the indications for thorough drainage by operative measures are manifest. In our eagerness to relieve serous meningitis by surgical intervention we must not lose sight of the well-recognized fact that many patients will recover by lumbar puncture and removal of the focus of an aural suppuration and exposure of the dura. Exploratory operations on the brain, therefore, should be deferred until the results of the former are observed.

Much divergence of opinion exists as to the curability of a general suppurative meningitis; the subject, however, is governed largely by the individual conception of the terms "general" or "diffuse." On this subject Heine¹ says:

I agree with Lexer that the words "circumscribed" and "diffuse" have been differently understood by different authors. In discussing inflammation in serous membranes Lexer distinguishes three forms, the encapsulated, the acutely progressive and the general. In the encapsulated form the opposing serous surfaces are firmly bound together around the area of inflammation by fibrinous exudate and granulations. In the progressive form either the tissues fail to effect this shutting off of the focus of inflammation or the infection, at first confined, breaks through the protecting wall and spreads rapidly. Finally, the general form, in which the whole serous lining of the cavity is involved, is a further development of the progressive variety. These different forms are best seen in suppurative peritonitis, of which the acute progressive stage may be checked sometimes by operation, but the generalized form is always fatal.

Heine is of the opinion that "the circumscribed and progressive forms of suppurative meningitis are curable, but the prognosis in the generalized form is absolutely unfavorable."

Judging from the above classification it may be that some of us have accepted as identical the diffuse and progressive forms of suppurative meningitis, in which event we can readily account for the reported recoveries. I am of the opinion that generalized suppurative meningitis is incurable by any therapeutic measure at our present command; this, however, should not deter us from adopting prompt surgical intervention, from the fact that we are not yet competent to determine unqualifiedly the exact stage to which an advanced case has progressed. In other words, in a given case the meningitis may not be so generalized as the severe symptoms seem to indicate, and, in consequence, a prompt operation may relieve the patient. In any event, we are developing the subject in the right direction, and, while diversity of opinion exists as to the curability of certain forms of this disease, the conviction is unanimous that otitic suppurative meningitis can be cured only by the institution of immediate operative intervention. Briefly, then, otitic meningitis is strictly a surgical disease, just as suppurative peritonitis has long since been so recognized; and, in consequence of the growing demand for this interpretation, the profession will, sooner or later, be brought to a realization of this fact.

In the treatment of otitic meningitis, then, two objects are paramount: the first, the complete removal of

*Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Heine: Operations on the Ear, 1908.

the primary source of infection; and the second, the complete evacuation of the intradural exudate. From the fact that the usual route of infection is through the labyrinth and internal auditory meatus, our efforts obviously must be directed toward the establishment of drainage in all cases of this nature. When prompt surgical measures are adopted many patients with "meningitis serosa," even though diffuse, will recover, but from the fact that death is caused from paralysis of the respiratory center, due to pressure, an early operation is imperative. Drainage, once established, must be maintained by the adoption of every means to this end at our command, and, even then, little hope can at present be entertained for the recovery of a patient with diffuse suppurative meningitis, when the symptoms are mainly toxic.

Whenever we have confined pus or other inflammatory exudate our first object in the line of treatment is its immediate evacuation by the establishment of efficient drainage. In otitic basal meningitis this is best accomplished by either the translabyrinthine operation, in which a coincident vestibulotomy is an essential part, or by the postlabyrinthine operation, and, in certain selected cases, it may be necessary to perform both of these operations. On this subject West and Scott² remark:

It is yet too early to speak with certainty on the prospect which this operation (translabyrinthine) holds out of saving the less virulent cases of meningitis. We can say only that we have, by its use, combined with lumbar drainage, succeeded where previous experience with cases of similar type led us to expect a fatal result, and that we regard it as a method of great promise. It has two obvious advantages over postlabyrinthine drainage, namely, that the route of infection is strictly followed and that the internal meatus affords a natural drainage-tube, which is infallibly rightly placed, and leads directly to the part of the subarachnoid space which it is desired to reach. In addition there is the great gain that the primary source of meningeal infection is removed.

In localized meningitis, complicating acute aural disease, we must first perform the simple mastoid operation, taking care to remove every trace of necrotic bone, while the radical operation is necessary in cases resulting from a chronic purulent otorrhea. Great care must be taken not to disturb the barrier hastily established by Nature to inhibit further ingress or dissemination of infectious micro-organisms, and yet every vestige of bone must be removed down to the area of adhesion between the dura and bone, but not beyond these limitations.

In a former communication on this subject I pointed out the importance of always carefully opening the external labyrinthine wall for a fistulous opening, as an essential part of the mastoid operation. In severe meningitis, of whatever type, this opening must be enlarged and the semicircular canal, vestibule and cochlea opened to provide efficient drainage from the labyrinth.

Meningitis occurring by way of the labyrinthine route is always secondary to a necrotic disease of the middle ear and accessory cavities. The mode of infection, therefore, is usually through the fenestra rotunda, the fenestra ovalis, the promontory, or the horizontal semicircular canals. This invasion may also occur by way of the aqueductus vestibuli, the aqueductus cochlea, or the posterior or superior canal.

In all cases of diffuse otitic meningitis, serous or septic, the radical mastoid operation should be performed immediately. This will frequently expose the

focus of bacterial invasion, manifested by eroded bone or exposed dura, through which a free incision should be made to provide for evacuation of the intradural exudate. Although a diffuse suppurative meningitis will most likely prove fatal, our only hope of relief lies in the prompt adoption of the surgical measures above enumerated, and, in addition thereto, drainage of the lateral ventricle. The form of septic meningitis which is most likely to recover is that caused by the staphylococcus.

Infections of the meninges with the *Micrococcus pneumoniae*, in my judgment, are always fatal, and especially is this true when such infections complicate a pneumococcic otitis media, which is much more prevalent than the literature of the subject would seem to indicate. Indeed, my experience in the past few years has forced me to the conclusion that a pneumococcal aural infection is not only one of the most destructive in its ravages on the soft and osseous structures, but probably more prone to the development of secondary otitic meningitis than any other form of germ infection. In fact, the ear is so often involved during a pneumococcic, as well as a typhoid infection, and the complications incident thereto so frequently occur, that the profession should always be mindful of their intimate association. This seems especially true when we are reminded of the large number of such aural complications that are never suspected until a suddenly discharging ear reveals to the attending physician a condition replete with danger.

Then again, the ultimate recognition of these complications very frequently clears up a doubtful diagnosis in a given case, and in another forcibly demonstrates that, after all, the patient was not suffering from a so-called relapse. This pointedly illustrates the importance of a bacterial invasion of the organ of hearing in its relation to many general diseases, either as a complication or as the chief underlying, unrecognized, etiologic factor.

As in other forms of illness, we must use every means at our command to establish a precise diagnosis, not only as to the presence of meningitis, but, if possible, the exact form and extent of this disease, as successful intervention can only be accomplished by the adoption of prompt surgical interference. Our treatment and prognosis, therefore, will be governed entirely by our ability to establish a prompt diagnosis. Lumbar puncture is probably our best means of accomplishing this end, which also has the advantage of exerting a favorable influence on the cerebrospinal pressure, as in the presence of acute serous exudates this procedure (repeated if necessary) is of distinct therapeutic value.

Normal cerebrospinal fluid is absolutely clear and entirely free from all foreign matter. If, therefore, we are in doubt as to the necessity for operative interference, and lumbar puncture reveals a cloudy fluid containing cellular elements and fibrin, we are assured, in the first place, of the presence of a meningeal inflammatory exudate, and, in the second place, of a very doubtful prognosis in the absence of prompt surgical intervention.

Serous meningitis need not necessarily be caused by the various forms of bacteria, as demonstrated by lumbar puncture; or, when present, these may be very few in number, or their virulence greatly reduced, and the case may not, therefore, call for operative interference.

If the symptoms of intracranial pressure are grave a decompression operation should be performed over the

2. West and Scott: The Operations of Aural Surgery, P. Blakiston's Son & Co., Philadelphia, 1909.

cerebellar or temporal regions, following which it may be necessary to incise the dura. In addition to this, drainage of the lateral ventricle should be resorted to. This latter procedure is often used only as a last resort, but it would probably be of greater service if used at the onset of pressure symptoms that cannot be relieved by lumbar puncture.

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THE OPERATIVE TREATMENT OF OTITIC MENINGITIS *

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. My topic is the operative treatment of otitic meningitis. By meningitis I mean here diffuse purulent leptomeningitis, that is, an acute inflammation of the soft membranes of the brain which has produced a cerebrospinal fluid varying from being slightly turbid to mere pus, and containing an excess of polynuclear cells. The so-called serous meningitis and the different forms of local meningitis are, therefore, excluded in this paper.

The operative treatment of otitic meningitis, in contradistinction to operations for other otitic intracranial complications, has made its way very slowly. It was, as you know, initiated about eleven years ago by Macewen of Glasgow, who, in his excellent work on pyogenic diseases of the brain and the spinal cord, published a report of two cases of otitic meningitis in which operation was successfully performed. I do not think, however, that these were genuine cases of diffuse purulent meningitis. Since then, several surgeons have tried surgical interference in otitic meningitis, and a small number of successful cases have been reported. But even now, one of the leading otologists in Germany, Herman Schwartze of Halle, still abstains from operation in cases of otitic meningitis, as can be seen from the last report from his clinic published a few months ago.

There are, I think, several reasons for the fact that this operation makes its way so slowly. First, surgeons often get these cases under treatment when the meningitis is far advanced and the whole state of the patient is such that one involuntarily thinks of Dante's words, "Leave hope behind, all ye who enter here." Second, I think that other surgeons may, like me, have operated on a number of consecutive cases of even short duration without being able to avert a fatal issue. I myself operated on my first ten patients without success. After such an experience, it is very natural for a surgeon to abandon the operation, especially as the operative treatment of other otitic intracranial complications has yielded such unexpectedly good results.

Third—and this is perhaps the principal cause—aural surgeons, even with an extensive practice, do not see many cases of otitic meningitis. For example, an experienced aural surgeon, Dr. Dench, who read a most interesting paper on the operative treatment of otitic meningitis at the International Medical Congress last year, up to that time operated on only eleven cases of otitic diffuse purulent meningitis. In my department of the large municipal hospital of Copenhagen, a city of over one-half million of inhabitants, an average of only seven patients suffering from otitic meningitis are admitted in the course of a year,

although a considerable number of real or supposed cases of otitic intracranial complications are sent to the hospital, which is open to every one, rich and poor.

The material on which this paper is based is, therefore, small, for, during the last four and one-half years during which I have operated for otitic meningitis, only thirty-three cases of this disease have come under my observation. In twenty-six of these operation was performed. I have operated on several patients who I believed, at the time of operation, had otitic meningitis, but in whom the post-mortem revealed tuberculous meningitis or edema of the meninges. I believe, however, that my material on this topic is the largest of which a report has as yet been published.

Before entering on the principles and the description of the operation of otitic meningitis I would strongly urge the importance of performing, if possible, before operation two forms of examination, lumbar puncture and examination of the acoustic and static functions of the labyrinth. Both forms of examination are not only valuable for the diagnosis, the prognosis and the etiology, but also for the treatment of this disease.

It is well known that the diagnosis of otitic meningitis is extremely difficult in many cases, and if it were not for lumbar puncture many more diagnostic failures would be made than at present. Like most other diagnostic methods, it is not infallible, but the exceptions are very rare. Its principal drawback is that cerebrospinal fluid is not always evacuated, or is united with blood, which renders the examination worthless. I have made use of lumbar puncture over 200 times and consider it, if all proper septic precautions are taken, a safe procedure; only once or twice was it followed by unpleasant consequences in the form of pains in the back and in the legs, which pains, however, were only of short duration. The more I use the lumbar puncture the more I rely on it as a diagnostic method.

My experience in the use of lumbar puncture shows that in all cases of otitic meningitis the cerebrospinal fluid is turbid twenty-four to thirty-six hours after the onset of the meningitis, but rarely earlier than twenty-four hours after the onset; it contains cells of which the majority are polynuclear. Bacteria are generally present; when they are absent the prognosis is favorable. The more turbid the fluid the worse the prognosis. On the other hand, the clearing of the fluid during treatment is a sure sign of the retrogression of the meningitis, and in several of my cases it showed itself before the brain symptoms began to clear up.

I often perform a lumbar puncture without any general anesthetic, but in cases in which I am convinced that the patient has intracranial disease I often postpone this procedure until the patient is under the anesthetic for the operation. If the microscopic appearance of the fluid leaves any doubt a microscopic examination is performed by an assistant during the first stage of the operation.

I have tried repeated lumbar punctures in a few cases, as a therapeutic agent in otitic meningitis, but have not observed any beneficial result.

The examination of the acoustic and static function of the labyrinth is also valuable, both in diagnosis and in deciding on the nature of the operation to be performed. Total deafness and the absence of nystagmus when the diseased ear is syringed with cold water, after Barany's method, point strongly to meningitis in doubtful cases, and demand the opening of the labyrinth during the operation.

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

I shall now proceed to the question whether or not operation shall be performed in all cases of otitic meningitis. My answer must be that only in a few exceptional cases, namely, those in the advanced stages of the disease, should I feel justified in advising against operation. And even then, in children and young persons suffering from otitic meningitis, a comatose state may be the result of an abscess in the brain rather than of the meningitis it has caused, for brain abscess is by no means a rare cause of meningitis, and its symptoms are often entirely concealed by the symptoms of the meningitis. Furthermore, in my experience, in fatal cases the patient seldom grows worse immediately after the operation; more frequently the brain symptoms become less pronounced, but in most cases the state remains unchanged. Thus nothing is lost by operation and the patient is given a chance of recovery.

Operation for otitic meningitis ought to be performed without loss of time. Each hour that passes before operation may be fatal. My impression is, that in a certain number of cases of meningitis, the inflammation of the membranes of the brain does not set in, as in the majority of the cases, with a sudden explosion like that of a gunpowder barrel into which a spark has fallen, but resembles rather a smoldering fire, spreading for a short time to all sides and bursting at last into an all-destroying conflagration. In such cases, if the primary disease is eliminated early, the fire dies out for want of fuel.

The elimination of the primary focus in the ear is beyond doubt the salient point in the surgical treatment of otitic meningitis, and this should be done as thoroughly as possible. This involves the opening of the labyrinth in all cases in which either the functional examination before the operation shows that it is destroyed or the examination during the operation shows that it is diseased, the most frequent sign being the existence of a labyrinth fistula. In order to get the external wall of the labyrinth well exposed for inspection it is necessary to perform a radical operation also in cases of acute osteitis of the mastoid process. It is, besides, easier to perform craniotomy over the tympanic cavity after radical operation.

After having performed a radical operation and eliminated all diseased tissue in the temporal bone, where there generally is an acute osteitis even in chronic cases, the disease being very seldom limited to the antrum mastoideum alone, there is another frequent inflammatory focus to be looked for carefully, namely, thrombosis of the sigmoid sinus. My experience proves that it is a frequent complication of middle-ear disease in these cases, the sinus being found diseased in eight out of my thirty-three cases. I think that, in a certain number of cases, it is probably the medium through which the inflammation spreads to the membranes of the brain. The presence of this intracranial complication does not, according to my experience, make this prognosis more grave. On the other hand, I believe that there are also cases in which the inflammation from the middle ear spreads explosively to all sides, reaching simultaneously the membranes of the brain and also, sometimes, the brain itself, where it forms an abscess or an acute encephalitis.

In all cases of otitic meningitis, therefore, I expose to view the whole perpendicular part of the sigmoid sinus and examine it for the possible existence of a thrombosis. It is, however, by no means an easy matter to diagnose the existence of a thrombus by ocular examination or by palpation of the sinus. Neither does the history of a

case often give any hint of the presence of thrombophlebitis. For these reasons I generally make a puncture of the sinus with a Pravaz syringe. If this reveals fluid blood in two different places a little apart from each other it is highly probable that there is no thrombus present. If the syringe remains empty or if pus is extracted I do not open the sinus and expose the lateral wall during this stage of the operation, but I wait to do it at the end of the operation, when craniotomy is performed, in order to avoid infection of the soft membranes of the brain from the diseased sinus, in case it should be found necessary to open the subdural space. In these cases, as a rule, I do not ligate the jugular vein, partly because I have not faith enough in the beneficial effect of this operation in the majority of cases of thrombophlebitis and partly because I fear that ligation of the internal jugular veins produces an unfavorable circulation in the diseased brains. Furthermore, the ligation prolongs the narcosis, which is often very long, especially if the labyrinth is opened.

I now perform craniotomy by enlarging upward the bony cavity produced by the radical operation, using as much as possible a strong cutting forceps and making an opening extending $2\frac{1}{2}$ inches horizontally and about $1\frac{1}{2}$ inches vertically. The opening should be so situated as to expose freely for examination the following parts of the dura: first, the part corresponding to the mastoid antrum; second, that part corresponding to the attic, for the inflammation of the soft membrane of the brain occasionally starts here as a local pachymeningitis; and, third, the part of the dura which covers the posterior surface of the petrous bone, for there are found now and then small, deep-seated epidural abscesses which otherwise are easily overlooked. When looking for this form of abscess the free exposure of the sigmoid sinus, performed in the former state of the operation, is of great assistance, as the inner edge of the perpendicular section of the sinus represents a line beyond which one must not go.

The question now arises, should the subdural cavity be opened in all cases of otitic meningitis? I must at once declare that I am not able to give a decided opinion on this point at the present state of our knowledge of the subject. I think it is still a matter *subjudice*. That it should be done in a certain class of cases is beyond all doubt. These cases are the following: (1) when a fistula is found in the dura, for then there is sure to be either a pure subdural abscess or a subdural abscess complicated with a superficial abscess of the brain (what Macewen calls an ulceration of the brain); (2) when there are signs of gangrene of the dura, which shows itself by a part of the cranial surface of the dura being discolored, soft and uneven on the surface, and in which case it is highly probable that there is a suppurative pachymeningitis interna with or without superficial abscess of the brain; (3) when the subjective or objective symptoms point toward the existence of a brain abscess; this must be suspected especially when brain symptoms have existed previously to the development of meningitis, when there is slow cerebation and when there are local symptoms. It is, however, an established fact that meningitis may be accompanied by local symptoms without an abscess of the brain being present.

When the dura presents a normal appearance or is covered with superficially healthy granulations or other products of a pachymeningitis externa which do not point toward the existence of a deeper lesion of the membrane (for instance, fibrous filaments), the question

whether an incision of the dura should be made or not is, in my opinion, very difficult to decide. The incision of the dura has, of course, its great advantages and I myself have performed it in most of my cases, but experience has shown me that it also has serious drawbacks. The advantage which at once presents itself as important is the possibility which the opening of the subdural cavity gives for this drainage and the subarachnoidal spaces, and many surgeons attach much importance to this procedure, believing it to be a most important factor in the treatment of otitic meningitis. My personal experience does not, I must confess, corroborate this view. I have in several cases drained the subdural cavity by means of iodoform gauze and found that the drainage was often imperfect, presumably because the hyperemia of the brain or the superficial encephalitis,¹ so often present in meningitis, makes the brain swell so much that it is pressed hard against the inner surface of the skull round the craniotomy opening, a phenomenon one often can observe directly after craniotomy is performed. In other cases the secretion is enormous and can be tolerated by the patient only if he is able to assimilate a corresponding quantity of fluid through his intestinal tract. Besides, while in some patients the substance of the brain is very tolerant of meningitis, in others the slightest touch produces bleeding and contusion. I am, therefore, not convinced of the advantage of draining the subdural cavity in ordinary cases of otitic meningitis.

But the incision of the dura as a routine treatment has one great advantage: it insures the operator against overlooking a subdural or a cerebral abscess, which complications now and then do occur in cases of otitic meningitis. For instance, among my operations, which number twenty-six, two were in cases of subdural and three were in cases of cerebral abscess; and in two of these the dura showed no sign of disease on its cranial side, nor did the patient in these cases exhibit any symptoms of these complications. Therefore, when the dura has not been opened the surgeon remains in uncertainty as to the existence or non-existence of a subdural and a cerebral abscess in cases in which the brain symptoms do not decrease after operation, and he must now and then be obliged, as I once have been, to open the subdural space a day or two later. This operation is, of course, very easy and of short duration where craniotomy once has been performed, but it may be performed too late to check the development of the meningitis.

It will be seen that several circumstances speak greatly in favor of the opening of the subdural cavity in all cases of otitic meningitis. But it has two serious drawbacks should no subdural or cerebral abscess be found, namely, the risk of infecting a healthy brain and of producing a prolapse of the brain. Prolapse of the brain is in aural cases, according to my experience, often a very difficult complication to deal with during the after-treatment. It easily obstructs the cavity produced by the operation, making the dressing of it difficult, and the brain substance in some cases becomes infected from the suppurating cavity of the temporal bone.

Having given my opinion on the principles of the operative treatment of otitic meningitis, I shall conclude by stating the results I have obtained.

Of the thirty-three patients with otitic meningitis who form the basis of this paper, exact diagnosis in all cases being insured either by lumbar puncture or by post-

mortem examination or by the fatal termination of the disease, seven were not operated on, most of them because the patient or their relatives refused operation. They all died. Of the remaining twenty-six, the operation performed was without any result whatever in seventeen cases. In one case, that of a girl aged 7, the patient woke up at once from a comatose state and seemed on the way to perfect recovery, when suddenly, nine days after operation, cerebral hemorrhage occurred and the patient died. In two cases all signs of the meningitis disappeared entirely, but an abscess of the brain developed later and the patients died, respectively, one month and about one-half year after the operation. In the remaining six cases there was complete recovery, one patient, however, having still a prolapse of the brain covered with epidermis one year after operation. To illustrate the benefits of the operation I will give a short history of one of these cases.

A woman, aged 28, was sent to my department last year after having suffered for a few days from headache and drowsiness, accompanied by fever. She lay in a deep sleep, from which she could be roused only with difficulty, showing signs of slow cerebation, with a pulse of 50. There was complete paralysis of the right oculomotorius and a slight central paresis of the left facial nerve. There was a chronic suppuration of the right middle ear with no mastoid infiltration or tenderness. Neither rigidity of the neck nor the sign of Kernig was found on admission, but both appeared two days later. The lumbar puncture yielded a very turbid cerebrospinal fluid, which contained numerous polynuclear cells, but no bacteria. Radical operation of the middle ear was performed at once with craniotomy incision of the dura and incisions of the brain in different directions, an abscess being suspected, but not found. The next day this markedly slow cerebation changed to excitation, which lasted for some time. Four days later the cerebrospinal fluid was almost clear and the patient was ultimately perfectly cured, a cerebral prolapse which developed after the operation disappearing again entirely.

Such a case is a good illustration of the beneficial effect of the operative treatment of otitic meningitis in some cases. This young woman was the eldest of my patients who recovered, the others being mostly young persons about the age of puberty. In several cases the symptoms indicated a very serious disease of the brain and the turbidity of the cerebrospinal fluid was in most cases very pronounced, but in all the cases the meningitis had been of only a few days' duration.

I must finish this paper, which I have endeavored to make as short as possible, by urgently recommending that you never consider a case of otitic meningitis as a *noli me tangere*, but that you operate without loss of one of those precious moments on which may hang the life of a human being.

ABSTRACT OF DISCUSSION

ON PAPERS OF DES. DENCH, SMITH AND MYGIND

DR. NORVAL H. PIERCE, Chicago: Our distinguished guest has handled the subject much more simply than we in America are accustomed to regard it. I listened attentively and endeavored to understand on just what symptoms he bases the diagnosis of a general purulent meningitis. I believe it is very important to maintain a difference in our minds between serous meningitis and purulent meningitis. On this point depends what Professor Mygind said regarding the incision of the dura. My opinion is, or rather I accept the opinion, that a serous meningitis is nothing more nor less than a collateral edema due to the action of toxins on the fluid and tissues constituting the sub-dural space, resulting in an increase of the cerebrospinal fluid. A purulent meningitis, on the other hand, is an entirely different thing; a

1. In some cases I excised a piece of the brain and had it microscopically examined, with the result that there was found no evidence of encephalitis.

purulent meningitis has to do with the action of living micro-organisms on the blood vessels and the perilymphatic spaces accompanying these vessels of the meninges—especially of the pia, which provides vessels and perivascular lymph spaces which penetrate the brain substance—so that in all cases of purulent leptomeningitis we have an encephalitis as well. It is impossible to differentiate clinically between certain forms of serous meningitis and purulent meningitis. Fever, pulse, stiff neck, general condition, slow cerebration, delirium; are to be found in both classes; nor can we place absolute dependence for our differentiation on lumbar puncture. You may get a cloudy fluid very rich in leukocytes on lumbar puncture and yet have a serous meningitis that is due to a localized purulent focus within the epidural space which has been walled off. The corpuscular elements sink to the bottom of the cerebrospinal sac as they would in a test tube. That we may have a cloudy fluid on lumbar puncture in cases of serous meningitis is abundantly proved by the observations of Koerner, Alexander, Voss and others.

Our visitor has said that he is careful to examine the static functions in order to ascertain whether the labyrinth is involved in the purulent process. Undoubtedly this is very important, but we must also remember that if he uses this in support of his position that he has to deal with a general purulent meningitis, his deductions may be erroneous. The cases in which the meninges are invaded by way of the labyrinth have no tendency *per se* to become diffuse purulent meningitis; their tendency rather is to become localized and encapsulated.

Now regarding treatment, a serous meningitis may be due to suppuration outside the cranial cavity, as in acute otitis media in children; it may be due to a localized purulent focus inside the cranial cavity but outside the dura, as in extradural abscess; or, it may be due to a purulent focus inside the dura which has become walled off. When we can remove the irritative focus we cure the collateral edema. Now, are we not in great danger in such cases following immediately the operation on the mastoid of incising these dura, in an area that is already highly septic (because most operators recommend puncture of the dural sac from the mastoid wound), of changing a simple serous meningitis into a diffuse purulent meningitis by introducing micro-organisms within the subdural space? At least this is one of the dangers of which we must beware.

Dr. J. A. STUCKY, Lexington, Ky.: Notwithstanding the eminence of the essayists and their great experience, their care and judgment and scientific ability, the subject under consideration still remains one of the unsolved problems, but undoubtedly we are progressing, and are saving more meningitis patients to-day than we did five or ten years ago. I see a great many cases of meningeal irritation of otitic origin, the result of long neglected ear troubles. A few years ago I spent some time with Ballance at London and came home enthusiastic for his teaching; out of 17 carefully observed and recorded cases I have seen 3 or 4 recoveries. As Dr. Pierce has said, in the question of diagnosis of cerebral edema (and I may say that I believe in a serous meningitis; that the serous form is simply a prepurulent stage), we may have more than one cause of infection. No one has mentioned the danger of confusing what our presiding officer called a meningismus with a meningitis. We may have a toxemia that produces all the symptoms of the serous form, or a diffuse meningeal irritation, or a meningitis; I have seen that from intestinal toxemia. We know that there is no disease that locks up the secretory and excretory functions of the body like a disease of the ear, and in our efforts to diagnose these cases by exclusion we must not forget the possibility of intestinal toxemia producing a meningeal irritation. Neither of the essayists, nor Dr. Pierce, has mentioned the possible good results that may come from the administration of large doses of hexamethylenamin in these cases of suspected meningeal irritation. I think it is well to consider that in the treatment. I endorse with emphasis what our distinguished guest has said—give your patient a chance—no case is hopeless—operate early and give drainage.

Dr. C. M. BROWN, Buffalo: It seems to me that Dr. Dench struck the keynote when he said that the important thing was early diagnosis. I would call attention to one symptom that has not been referred to, that is restlessness or twitching of the muscles of the face. Alexander claims that this is more important than stiffness of the neck. I would like to ask Dr. Dench if he has observed this?

Dr. R. P. SCHOLZ, St. Louis: I believe that all authorities agree that in cases of suppurative meningitis of otitic origin, operation is indicated, and that patients with serous meningitis, or as one of the speakers has called it, collateral edema, may recover without surgical interference. In rare cases Nature often brings about restitution where there has been suppuration of the labyrinth with more or less meningeal involvement. I believe the post-mortem room furnishes the best opportunity for study of this class of cases, for here we see not only the cases resulting in death from meningitis, but occasionally find a case in which there is evidence of an old healed meningitis. I have observed that in cases of meningitis, exudate is frequently found about the lamina tectoria cerebella and believe that this and congestion occludes the foramen of Magendie, thus giving rise to increased ventricular pressure. I would like to ask Prof. Mygind if he too believes that all such cases in which there are inflammatory changes (exudate, etc.) about the foramen of Magendie, are not necessarily fatal.

Dr. OTTO GLOGAU, New York: A patient came into the office with the statement that he had been in a hospital, had had a mastoid operation, had been neglected and there was development of granulation tissue about the wound. I called in consultation another otologist, who decided that it was exuberant granulations, while I had suspicion of a malign growth and removed a piece for microscopic examination. Dr. Neuman of Vienna saw the case, and without looking at the mastoid wound decided that an operation should be done, the patient having all the symptoms of otitic meningitis; but the next day when I took off the dressing he decided that it was an inoperable sarcoma of the mastoid and it turned out to be a spindle-celled one. I asked Dr. Coley for some fluid and learned that he had seen the case before, a fact which the patient had not told us. The patient had, a few months before, a slightly swollen gland underneath the mastoid, attended with pain, which was mistaken for mastoiditis and operated on. He developed a sarcoma which had encroached on the dura and from this growth was produced an attack of otitic meningitis.

Dr. CULLEN F. WELTY, San Francisco: It has been demonstrated that in 65 or 75 per cent. of all cases of meningitis infection comes by way of the labyrinth. This is really startling; but there are tests which, if made in detail, will tell the exact condition of the individual labyrinth. Should this examination be put off the patient may be so ill that a satisfactory examination cannot be made later.

The examination chart of the Vienna school of otology is as follows:

A.	B.	R.		L.	A.	B.
.	.	.	Convers.	.	.	.
.	.	.	Whisp.	.	.	.
.	.	.	Acumeter	.	.	.
.	.	.	Weber	.	.	.
.	.	.	Rinne	.	.	.
.	.	.	Schwabach	.	.	.
.	.	.	C ₁	.	.	.
.	.	.	a ₁	.	.	.
.	.	.	C ₂	.	.	.
.	.	.	Galton	.	.	.
.	.	.	Stenger	.	.	.
.	.	.	Watch on bone	.	.	.
.	.	.	Acumeter on bone	.	.	.
.	.	.	Vertigo	.	.	.
.	.	.	Tinnitus	.	.	.
.	.	.	Spont. Nystag.	.	.	.
.	.	.	Galvan. Nystag.	.	.	.
.	.	.	Caloric. Nystag.	.	.	.
.	.	.	Nystag. after turn.	.	.	.
.	.	.	Equil. Dist.	.	.	.
.	.	.	Lucas-Dennert	.	.	.
.	.	.	Hearing tube	.	.	.
.	.	.	Fistula Symptom.	.	.	.

If from examination a latent labyrinthitis is diagnosed and a meningitis develops, it is clear that the complete destruction of the internal ear is essential; in other words, the Neumann operation. However, if a meningitis develops and the labyrinth is intact, one knows that a different operation should be done. The possibilities in such cases are much lessened—one has much more definite information and can proceed accordingly.

The Vienna school of otology has certainly reduced the mortality of meningitis in this very way. They further teach and show conclusively that one is not qualified to do the radical ear operation unless he is prepared to do the complete exenteration of the labyrinth, and that a patient with a labyrinth suppuration should not be operated on at all unless the labyrinth is destroyed at the time the mastoid operation is done.

A few of these points are very well illustrated in a recent case to which I was called in consultation. The patient had a marked nystagmus to the opposite side; Weber to the good ear, and as I supposed, some hearing. Fistula test was negative. By the syringing with cold water, I concluded that the nystagmus was increased; this, however, was questionable; at all events my confrères agreed that such was the case. A diagnosis of circumscribed labyrinthitis was made and the radical operation done; at operation a fistula of the horizontal canal was found, the facial uncovered by caries, all of which was in perfect accord with the diagnosis. Three days later the patient was comatose, with stiff neck and painful spine. The labyrinth examination was made again and more accurately. There was no hearing and no increase of nystagmus from cold water, Weber to good ear. At this time the family would not allow further operative procedure. The patient recovered, she had a serous meningitis and it was induced by the operative procedure. The labyrinth should have been removed at the time of the first operation. So it is plain how important an accurate examination would have been in this particular case.

DR. E. B. DENCH, New York: With reference to Dr. Brown's question, I have not observed the restlessness and twitching of the facial muscles spoken of. I have seen beneficial effects follow repeated lumbar puncture. In reference to the exenteration of labyrinth in case of fistula, I presume Dr. Mygind means only where there are meningeal symptoms.

Puncture of the lateral sinus as a diagnostic measure has not proved satisfactory in my experience; one may go through a parietal clot and get fluid; I would rather open it than make a puncture in it. I agree with him as to the danger of ligating the internal jugular vein. In one case I think I got a death in this way.

Whether or not the dura shall be incised depends on the severity of the symptoms; if mild let the dura alone, but if severe, with high temperature, and pressure symptoms, you must incise the dura and pack it off.

In reference to Dr. Pierce's remarks as to the danger of the decompression operation on account of infecting previously healthy brain tissue, it seems to me that if it is done far forward, through the thinnest part of the squama, you can keep well away from the infected area and I do not think there is very much danger if you are careful to keep the wound in the mastoid thoroughly packed.

DR. S. MACCUEX SMITH, Philadelphia: I shall occupy only a few minutes to somewhat justify my digression from the subject of this symposium to state that I feel it is of the greatest importance for the general physician to keep the following cases in mind.

About three weeks ago, within a period of thirty-six hours, I was called to see three cases of otitic meningitis in adults, all of which proved fatal. One of these patients died before my arrival; two died within half an hour of my seeing them. In none of the cases was the ear recognized as the underlying etiologic factor sufficiently early to warrant operative intervention.

In one case I freely incised the membrana tympani and evacuated a quantity of pus which escaped under considerable pressure. This I did with a view of clearing up the diagnosis, about which there was still much difference of opinion. None

of these cases complained directly of pain in the ear, but they did complain of considerable head pain on the corresponding side, mostly over the temporal region, which was looked on as neuralgia. In only one of the cases did a discharge appear from the ear before death, through a spontaneous rupture of the membrana tympani.

DR. HILGER MYGIND, Copenhagen, Denmark: There is not a single symptom, subjective or objective, which is pathognomonic of meningitis. I have seen fatal cases where, until death, there was no rigidity of the neck and no Kernig sign, although the sign of Kernig is almost the most certain that we have, but I have seen two cases in which the sign was absent until death, and on the other hand I have seen cases of hyperemia of the brain in which it was present, though only very slightly. So, I think there is not a single certain subjective or objective sign. There is only one certain method of diagnosis, and that is by means of lumbar puncture.

Another question is, What is serous meningitis and what is purulent meningitis? Well, I think we shall not waste much time discussing that, because it is merely a matter of words. Let us first agree on what is a serous meningitis. If you go to three different competent men you will hear three different opinions as to what serous meningitis is. If you want my opinion I will say this: It is an acute disease of the brain with symptoms, subjective and objective, of meningitis, where the spinal fluid is clear but containing polynuclear cells when examined under the microscope. That is my definition. To call a case serous meningitis when there is no serous appearance of the fluid is confusing; so I think this definition I have given may help. I will not say it is the right one, because I might come to the next meeting with a different opinion; it is *sub judice*. We are in the first stage of our knowledge and are experimenting. If the fluid is turbid and contains an excess of polynuclear cells we have evidence of an inflammation of the meninges. Dr. Pierce may say that it is localized. Well, I have seen several cases of localized meningitis and in not a single one was there any alteration of the cerebrospinal fluid. I will not say that such cases do not occur. As I said in my paper, the puncture is not invariable, but the exceptions are rare. So I think we are justified in calling such cases as I speak of serous meningitis. This is a matter of opinion, which is, of course, not of so much practical importance, but the question of how to treat the case is of great importance.

I have been much interested in hearing the experience of Dr. Dench and the other gentlemen on this matter, and I am prepared to alter my opinion. If Dr. Dench can show me a proceeding by which I can prevent the production of a prolapse, then I shall not be so afraid of opening the subdural space as I have been lately. But, as I told you, I operated in nearly all my cases in that way in the beginning, though my experience has told me that the proceeding is not without danger.

A POSSIBLE DIFFERENTIAL SIGN BETWEEN CARDIAC DILATATION AND PERICAR- DITIS WITH EFFUSION*

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In attempting to develop a differential sign I wish to acknowledge the dangers of generalizing from my limited material and of interpreting post-mortem findings as clinical signs.

While studying the details of the mechanics of the support of the normal and pathologic heart, some relations between the heart, right lung and liver turned my attention to the changes in the position of the liver due to dilatation of the right heart and to pericarditis with

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

effusion. On analysis these changes seemed to be due to certain physical forces producing strains on given anatomic structures. As the nature and direction of these stresses are constant, varying only in degree, their effect should also be constant, varying only in degree. In the two lesions the physical forces present differ in that the support rendered the liver by the inferior cava through its connection with the heart and the connective tissue structures extending from the heart to the neck, is applied farther to the right in dilatation than in pericarditis. This difference in support of the liver may, when pressure is applied from above, cause a displacement of the liver to a degree possibly sufficient for a differential sign. The differential sign in cardiac dilatation is a high liver with a narrowed area of lung-liver relative dulness, and in pericardial effusion, a low liver

and side view. In this way the position of each organ and its relation to neighboring organs can be quite accurately studied. The strain on certain parts of organs can also be determined by considering the direction of parts in the light of the forces at work.

Examples of extreme development of given conditions often call attention to principles which might otherwise be overlooked. Consequently two cases will be described: first, a case of extreme dilatation of the right heart due to mitral stenosis; second, a case of extreme collapse of the heart due to pericarditis with effusion.

DESCRIPTION OF CASES

Points of Interest in Case 1

Sternum and ribs markedly depressed.

Heart as a whole displaced slightly into left thorax.

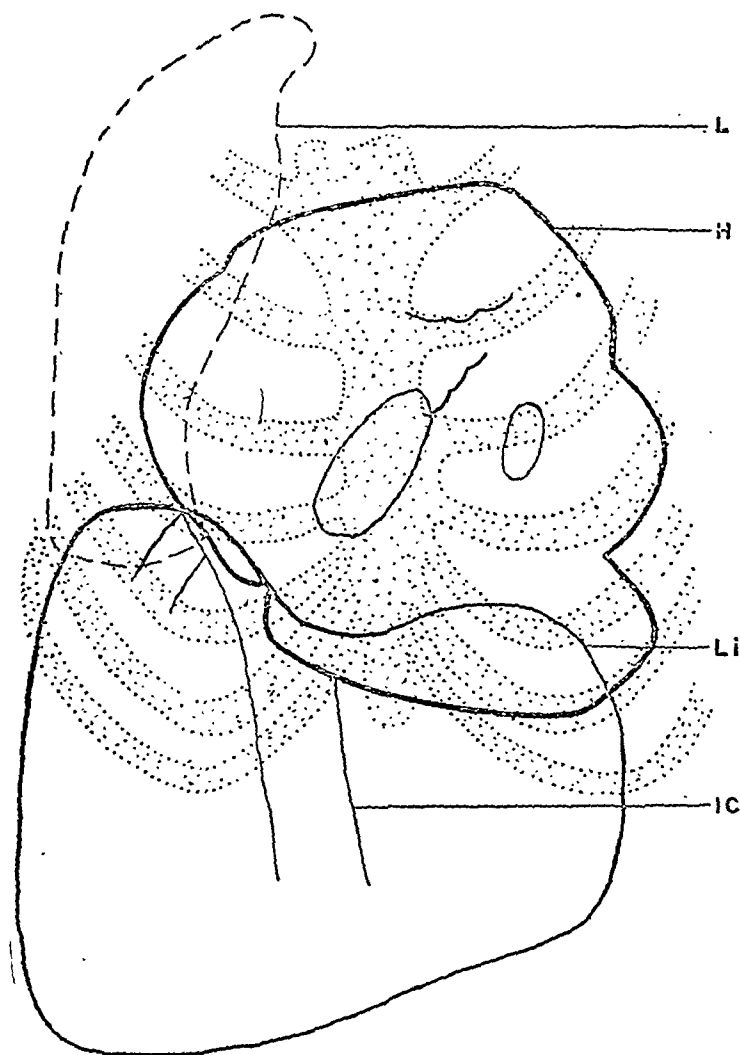


Fig. 1.—Mitral stenosis (Case 1) dilatation of left auricle, right ventricle, and auricle; position of heart (H) above reaching first rib, below, tip of ensiform cartilage, to left 9.5 cm., to right 8 cm.; right lung (L) 6.5 cm. to right of midsternal line, lower border in front in fourth interspace; liver (Li) enlarged, right lobe high, at fourth rib, hepatic veins open into right auricle at highest portion of right lobe, left lobe depressed; inferior cava, (IC) displaced to right with convexity to right.

with a narrowed area of lung-liver relative dulness. This possible differential sign pertains only to large cardiac dilatation involving the right heart, from which a differential diagnosis of pericarditis with effusion is often most uncertain.

Full details leading to the essential physical and anatomic reasons for this difference in the position of the liver are too numerous to be given in a paper of this nature. Consequently the main facts will be stated, leaving details for future publications.

The material was fixed in formaldehyd solution, sectioned, measured, and each organ projected in a front

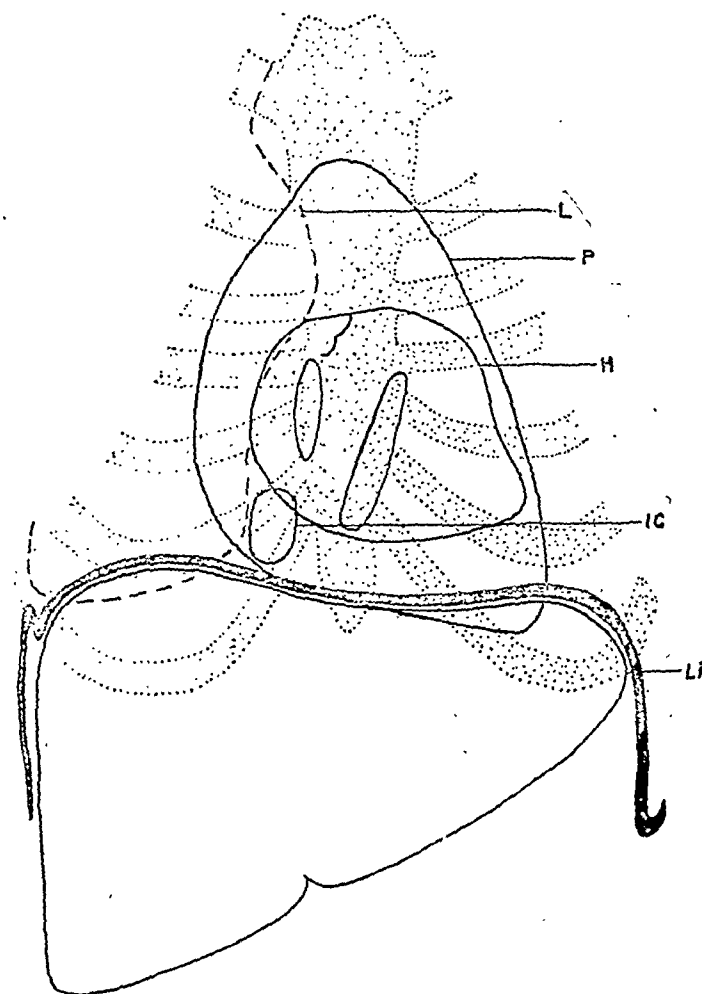


Fig. 2.—Pericarditis with effusion (Case 2); pericardial sac, P (dilatation not shown); heart, H (collapse cannot be shown); right lung (L) slightly displaced to right; pleural adhesions which have been pulled downward by pericardial pressure; liver (Li) displaced downward, upper surface of right and left lobes in almost same plane; inferior cava, (IC) not shown, but runs in almost a straight line.

Valvular openings actually lower than normal but when located in terms of ribs they are only slightly displaced, especially when the size of the heart is considered.

Left ventricle about normal size.

Left auricle greatly dilated. Greater portion of right wall in front of the root of right lung.

Right ventricle greatly dilated. Has pushed left lobe of liver downward.

Right auricle greatly dilated.

That portion of inferior cava above diaphragm dilated to form part of the right auricle.

Auriculoventricular wall runs in almost a straight line from diaphragm to root of left lung; this includes a portion of the wall of the left auricle.

Hepatic veins run in almost a perpendicular direction and open at the highest portion of the cupola of the right diaphragm into the right auricle.

Inferior cava dilated, displaced to right with convexity to right.

Liver (enlarged) has been pushed to right by the dilating right auricle and inferior cava. The right lobe has been held by the walls of the right auricle and inferior cava. This is shown by direction of walls and the course of the hepatic veins. Right lobe much higher than left—cupolated effect. Right lung pushed by left and right auricle upward, outward and backward.

Points of Interest in Case 2

Sternum and ribs only slightly depressed.

Heart swings near median line.

Valvular openings only slightly displaced.

All heart chambers collapsed.

Inferior cava above diaphragm stretched and that portion within the pericardium collapsed; near median line; congested but not greatly dilated.

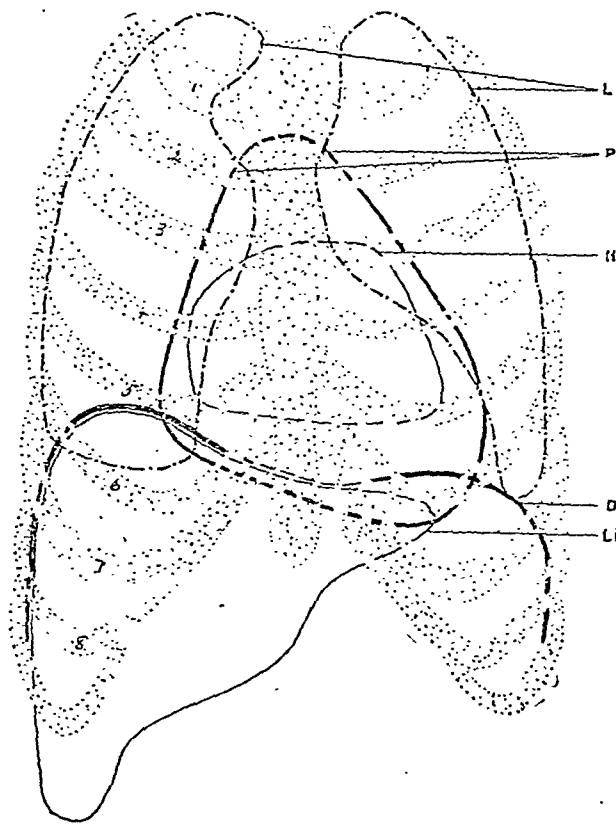


Fig. 3.—Pericarditis with effusion and dilatation of right heart (H); outline of pericardium (P) shown; liver (Li) at fifth rib, right lobe slightly higher than left; D, diaphragm; L, lung.

Auriculoventricular wall almost a straight line.

Liver displaced downward; right lobe not held up as in Case 1; right and left lobe in almost the same plane.

Right lung pushed outward and backward by the pericardial sac; pleural adhesions prevent easy displacement of lung; these adhesions show signs of downward drag.

COMMENT

These findings lead one to believe that the attachment of the pulmonary veins to the connective tissues and other structures about the root of the lungs and the auriculoventricular wall attached to the large vessels and through the left auricle to the root of the lungs play an important rôle in the support of the heart. When the right heart is markedly dilated the auriculoventricular wall runs in almost a straight line from the dia-

phragm to the root of the left lung, thus indicating the support of hydraulic pressure and stress transmitted from diaphragm to the root of the left lung. The right wall of the right auricle and to some extent the right wall of the pericardium transmit to the root of the right lung a portion of the stress from the diaphragm. Fibrosis incidental to cardiac lesions increases the strength of the auriculoventricular wall.

As the heart dilates the central tendon of the diaphragm is lowered; the weight of the liver and the resistance offered the dilating heart are referred to the walls of the right auricle and the auriculoventricular wall, thence to the root of the lungs and to the neck. Doubtless the column of blood materially supports the vascular and cardiac walls. The support thus rendered the liver is applied in Case 1 at the openings of the hepatic veins in the inferior cava. The support thus given the liver prevents the actual depression of the



Fig. 4.—Aortic stenosis; right heart slightly dilated; liver very large and high.

right lobe to the same degree as that of the left. Consequently the right lobe is pulled up, producing the high cupolated effect. As the inferior cava dilates, the openings of the hepatic veins are pushed to the right and finally occupy the highest portion of the liver, which in Case 1 is the cupola of the right diaphragm.

Movements due to the dilatation of the heart, including the right heart in Case 1, are:

1. Descent of the sternum and ribs.
2. Descent of the heart and liver.
3. Apparent elevation of the right lobe of liver.
4. Displacement of the inferior cava to the right with convexity to the right.

In the fetus the following relationships are found:

1. Sternum high, ribs horizontal.
2. Right heart small.

3. Liver bilobed, two lobes of equal height.
4. Inferior cava near the median line with convexity to the left.

As development of the fetus to maturity advances the following changes are noted:

1. Descent of sternum, ribs in oblique position. The acquired descent of the ribs doubtless accounts in part for the apparent higher position (in terms of ribs) of the liver in adults as compared to the foetal position.
2. Descent of heart and liver.
3. Right heart enlarges.
4. Left lobe of liver atrophies and occupies a lower position, right lobe occupies a higher position.
5. Inferior cava moves to the right, becomes straight or slightly curved with convexity to right.

The movements described in pathologic dilatations of the right heart are similar in nature to the normal movements noted during development of the fetus to maturity. In fact, they seem to be a continuation of the same movement. Consequently it seems reasonable to state that as the right heart dilates the following changes occur:

1. The heart and liver are displaced downward.
2. The right lobe of the liver is elevated with respect to the left lobe, the ribs, and the right heart.
3. The inferior cava moves to the right, and its convexity to the right is increased.
4. The sternum and ribs are depressed. This depression of the ribs causes an apparent elevation of the right lobe of the liver, as high as fourth rib. This apparent elevation does not depend on the size of the liver.

In dilatation of the right heart the liver is actually depressed as measured by vertebræ, but apparently elevated as measured by ribs. As this changed relationship of the liver apparently depends on the same principles as the normal relationship of the liver, it is reasonable to assume that the apparent elevation (with respect to ribs) of the liver in dilatation of the right heart is constant; or a provisional general statement may be made, as follows: Dilatation of the right heart actually depresses the liver; the left lobe of the liver is depressed more than the right, producing a high cupolated right lobe; right lobe of liver due to depression of the ribs is higher than normal, apparent elevation; the degree of change in the form and position of the liver depends on the degree of dilatation of the right heart. Or the movement of the liver in markedly pathologic enlargement of the right heart seems to be a continuation of the normal movement occurring in the development of the fetus to maturity.

In pericarditis with effusion different physical forces are at work. Here the heart and venæ cavæ are compressed by the pericardial pressure and cannot dilate to the same degree as they do in the absence of pericardial pressure. The dilatation of the heart in pericarditis with effusion is most probably in many cases a post-mortem phenomenon, developing as the autopsy progresses, and due to the congestion of blood in the large veins and lungs flowing into the heart as the pericardial pressure is removed. To be sure, the myocarditis present in pericarditis favors dilatation, especially if the pericardial pressure is low owing to weak pericardial walls. Again, the heart may be dilated before the effusion developed. In general, the physical forces in pericarditis tend to keep the heart at the same size as it was when the effusion began to develop, or at a diminished size. The inferior cava remains in its normal position or may be pushed to the left by the descent of the liver. The dilating pericardium extends to the right over the

diaphragm a distance depending on the degree of dilatation and the intrapericardial pressure tends to push the liver down. The degree of displacement of the liver depends, of course, on the degree of pericardial pressure. Here the liver has only its normal support.

The inferior cava remains near the median line in a posterior position. Consequently the right lobe of the liver is deprived of the support rendered in Case 1. In pericarditis with effusion the right lobe of the liver is displaced downward approximately the same distance as the left lobe (without the apparent elevation as in cardiac dilatation). The right and left lobes of the liver are more nearly on a level or tend to assume the position found during fetal life. The sternum and ribs descend relatively the same distance as the liver. Here the liver is actually lower without the apparent elevation. A provisional general statement may be made as follows: Pericarditis with effusion tends to produce (or actually does produce) the following conditions: diminution in the size of the right heart; actual depression of the liver without apparent elevation of the right lobe so that the right and left lobes are more nearly in the same plane; displacement of the inferior cava to the left with its convexity to the left. Or, in pericarditis with effusion, the relationship of the right heart and liver tends to revert to that found in fetal life.

It is thus seen that in the two conditions diametrically opposite physical forces are at work, the cardiac dilatation tending to produce a relatively high position, the pericardial effusion, a low position of the right lobe of the liver. A difference of as much as two or more interspaces in the position of the right lobe of the liver may occur.

Naturally the variation in the position of the normal liver is of importance. In the literature reviewed it seems that much of the material on which present statistics of the normal position of the liver is based is pathologic, and that the subject needs reworking with the pathologic positions of the liver and the type of thorax constantly in mind.

In cardiac dilatation the root of the right lung remains at about its normal level as compared to the vertebral column, and in Case 1 was on the upper, posterior portion of the left auricular wall. When the right auricle dilated the lower anterior portion of the right lung was lifted upward, outward and backward. The downward displacement of the ribs without a corresponding downward displacement of the right lung gives an apparent elevation to the right lung. There is, then, an actual and an apparent elevation of the lower, anterior portion of the right lung.

In pericarditis with effusion, owing to the small left auricle, the root of the right lung is not displaced to a degree corresponding to that in dilatation. The lower, anterior portion of the right lung is not lifted as in dilatation, but pushed by the pericardial sac outward and backward. The downward displacement of the ribs gives an apparent elevation (if pleuræ are adherent the lung follows the ribs).

In cardiac dilatation the real elevation of the lower anterior portion of the lung border serves to diminish the area of lung-liver relative dulness. The degree of narrowing of this area varies from what might be called a diminished area to almost complete absence of relative dulness. The relative elevation of the liver places this area of dulness high, fourth rib.

In pericardial effusion the liver is pushed down proportionately more than the lower border of the lung is

elevated, so that the area of lung-liver relative dulness is narrowed or obliterated and occupies a lower position than it does in cardiac dilatation. If the pericardial pressure is sufficient to push the sternum and ribs down the liver is also pushed further down, and consequently does not alter the relationship as described. Or, the differential sign should be, in cardiac dilatation, a high liver with a diminished area of lung-liver relative dulness, fourth rib; in pericardial effusion, a low liver with a diminished area of lung-liver relative dulness, sixth rib.

The differential sign is composed of two factors, the position of the liver and the presence and position of a diminished area of lung-liver relative dulness. Of these the position of the liver is most important, for the reason that it is more easily detected in corpulent patients in whom the lung-liver relative dulness may be too narrow for detection. The position of the lung-liver relative dulness is more important than the fact that it is narrow. As the position of the relative dulness depends on the same forces which displace the liver the absence of or failure to find the relative dulness should not materially detract from the value of the sign. Owing to the physical forces causing the change in the lung-liver relative dulness this area must vary from a diminished area to an area of dulness too narrow for detection.

In cases of moderate cardiac dilatation and pericarditis with effusion the changes in the position of the liver and the lung-liver relative dulness cannot be developed to a degree sufficient for a clinical sign. But as the physical forces at play are essentially different in kind and effect these forces should develop in advanced cases a displacement of the liver sufficiently well marked to constitute a differential sign. As this sign becomes more and more marked as the lesions develop, it reaches its greatest development at a time when differential diagnosis is most difficult.

ABSTRACT OF DISCUSSION

DR. HAVEN EMERSON, New York: I believe that it is impossible to get the sign referred to with the patient in the dorsal position, or with the patient on his back on a table. In the dorsal position it is not possible to verify experimentally dilatation of the heart; but in the horizontal it is possible to verify by experimentation this condition in animals, the lower animals. What Dr. Calvert has presented to us should prove a very valuable diagnostic point if it could be verified by observation.

DR. W. J. CALVERT, Dallas, Texas: In the matter of experimental proof there are a number of difficulties to be considered. There is only one animal, so far as I know, having the same anatomic arrangement of the pericardium, namely, the monkey. Cardiac dilatation which causes a change in this relationship, it seems to me, must be slowly produced. There can be no question as to the sign that was produced; it was shown by cross section work on the cadaver, the section being treated with formol and reproduced. I have not had the opportunity to examine clinically many of these cases. I do not see how the position of such patients can materially influence the findings.

Leprosy in Colombia.—An article by Dr. F. Arteaga in the *Repertorio de Med. y Cir.* of Bogota states that out of the 3,031 lepers in institutions in the state of Colombia, 142 are between 3 and 9 years old; 1,265 other lepers live at home. The total for the country is thus 4,296 to a population of 4,303,000. He comments on the fact that cretins seem to escape leprosy, and suggests that possibly their serum might be utilized in serotherapy of leprosy.

NEURALGIAS AND FUNCTIONAL DISTURBANCES ARISING FROM INFECTIONS IN AND ABOUT THE TONSIL*

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MINNEAPOLIS

Disturbances now commonly attributed to infected tonsils may be grouped under three heads, as follows:

1. Acute and chronic tonsillitis (symptoms in the tonsils themselves).
2. Diseases of the contiguous mucous membrane, that is, pharynx, larynx, trachea, bronchi, Eustachian tube and middle ear, arising from the pouring out of infected secretion from the tonsillar crypts.
3. Remote secondary infections, such as rheumatic arthritis, pericarditis, etc.

To these three groups there should be added a fourth not commonly attributed to infected tonsils, but which, it is hoped, this paper will demonstrate should be so ascribed, namely:

4. Local infections involving structures in the neck contiguous to the tonsil, giving rise to symptoms in this region, presumably, through involvement of nerves, often; by direct irritation or inflammation, but, sometimes, through reflex involvement, resulting in neuralgias and functional disturbances.

1. The first group was, until a comparatively recent period, the only one recognized.

2. The part played by the tonsil, when diseased, in the production of inflammations in the contiguous mucous membrane of the pharynx, Eustachian tube and middle ear has for some years, however, been realized and, when these structures are found diseased, aurists and laryngologists carefully investigate the tonsil to determine its condition, commonly finding it at fault. Furthermore, the complete removal of such diseased tumors has resulted in the relief of many aural, pharyngeal, laryngeal and bronchial disturbances from the fact that these septic soaked sponges have ceased to create and supply the mucous membrane with their products.

3. That tonsils which have become diseased serve as portals of entry for infections which may be later carried to remote regions of the body, resulting in other foci of infection such as rheumatic arthritis, pericarditis, pulmonary tuberculosis, uveitis and various infectious diseases formerly not attributed to that long-misunderstood and supposedly useful organ, is now well proved and generally appreciated by the profession.

4. In addition to the second and third groups of diseases mentioned, both of which are secondary diseases, that is, those which might be called metastatic or general infections and those resulting from the actual pouring out of infections from the crypts on the surrounding mucous membrane, there is another group of cases (secondary infections also) attributable to tonsillar origin but not usually ascribed to this cause, or if so, only rarely or indefinitely so assigned. It is to this class of cases that I wish to call attention. Although the symptoms may vary widely and may apparently have no relation to one another, yet they should be grouped together, for they are but different symptoms of the same affection.

I refer to the structures contiguous to the tonsil which have become inflamed or infected or involved through pressure arising from the chronically diseased tonsil in

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

the substance of the neck (not to mucous membrane infections which have occurred from the pouring out of the infected material from the crypts, mentioned above) giving rise to certain definite local symptoms which may vary from an uncomfortable feeling or slight soreness felt by the patient below the ear and at the angle of the jaw, to a severe and recurrent neuralgia in the same region or running up to the ear or back of the ear, sometimes causing so much pain as to prevent sleep, or to loss of voice through involvement of or pressure on the superior laryngeal nerve which passes through this region external to the tonsil, or through involvement of the recurrent laryngeal, a branch of the vagus, which latter nerve also traverses this locality.

These symptoms may be attributable to the inflammation of the deep portions of the tonsil or to the structures contiguous to it or to a secondary infection of the lymphatic glands (so abundant in this region) into which the tonsillar glands drain. Many of these neuralgias occur as the result of pressure on or inflammation of the nerves passing through this locality, in which latter case the inflammation may become chronic, a true neuritis developing. Such would, likewise, be the case when attacks of hoarseness or loss of voice take place, despite the fact that no inflammation of the larynx is present, the function being disturbed because of involvement of the superior or recurrent laryngeal nerve.

It is obvious that the treatment of these chronic and recurrent attacks of neuralgias, etc., consists in the complete removal of these diseased tonsils even though there may be no history of acute tonsillitis or no apparent enlargement of the tonsils. Such treatment will usually reward the surgeon with prompt relief. It is equally obvious that in certain cases the symptoms may persist, owing to the continuance of the secondary inflammations either in the lymphatic glands or in the nerve. Even in such cases a gradual subsidence of the symptoms may be anticipated.

In the inspection of such tonsils it does not suffice to glance at them. The anterior pillar must be pushed back and the tonsil lifted from its bed by means of a blunt tonsil-hook, when it may be better examined. The exertion of traction on such tonsils with a hook, while causing no soreness or pain in the case of a healthy tonsil, will cause pain and flinching when it is diseased, or when the deeper structures are inflamed, and manifest soreness is a valuable guide in determining the cause of such symptoms. Frequently or usually, I have found in such cases, if the affection was one-sided, that such traction on the affected side would produce flinching, while on the unaffected side the patient would not complain.

The point about such symptom-complexes is that the patient and his physician do not attribute his trouble to his tonsil, even if the patient has been subject to acute tonsillitis. Usually, however, he is not so subject or has not been for some time, though in reality he may have a chronic low-grade of tonsillar inflammation present or only a chronic secondary inflammation in the contiguous glands or other structures of the neck.

In many of these cases the tonsil has been entirely overlooked because of the fact that the patient complains of little or no pain in the tonsil and, on simple inspection, there is nothing in the appearance of the tonsil to lead the examiner to suspect that here is the cause of the trouble. A study of the normal and pathologic tonsil with particular reference to the anatomy of the contiguous nervous and lymphatic system is neces-

sary to the proper understanding of these reflex phenomena which owe their existence to a diseased condition of the faucial tonsil.

Normally between the pillars of the fauces on either side there are from ten to eighteen compound follicular glands arranged in folds, leading into small recesses or crypts, or as many puncture-like orifices. Such normal tonsils are not in view unless the anterior faucial pillar is drawn away, and, even then, the space exposed shows no tumor or swelling, but only slight folds of mucous membrane, nor is there to be found any detritus, pus, or decaying particles of food in the retention pockets. When a tumor exists which may be firm and fibrous, or soft and made up partially of granulation tissue, or when this tonsil contains crypts filled with detritus, pus, cheesy particles, or decaying food, there is present a diseased tonsil. Such a diseased tonsil is what some laymen call "a tonsil;" when the normal condition exists, they say that there is no tonsil present. Many physicians have likewise fallen into the habit of designating loosely as "a tonsil" an abnormal or diseased structure.

The nerve-supply of the tonsil is derived from the glossopharyngeal and branches from Meckel's ganglion. The glossopharyngeal leaves the cranial cavity by way of the middle compartment of the jugular foramen, lying in advance of and a little internal to the pneumogastric and spinal accessory nerves. On the trunk of the nerve in the jugular foramen are two ganglia, an upper, the jugular, and a lower, the petrous. The former is inconstant and both are considered analogous to the ganglia on the posterior roots of the spinal nerves. At the petrous ganglion the glossopharyngeal nerve is connected with the pneumogastric and sympathetic nerves by communicating branches. The branches of the glossopharyngeal nerve, other than the terminal lingual, and communicating, are the meningeal, tympanic, carotid, pharyngeal, muscular and tonsillar. The tympanic branch arises from the petrous ganglion and passes to the inner wall of the tympanum. It ramifies on the promontory of the tympanum, forming the tympanic plexus which supplies branches to the round and oval windows and to the Eustachian tube and communicates with the carotid plexus and with the great and small superficial petrosal nerves. The pharyngeal branches join branches from the pneumogastric, superior laryngeal and sympathetic nerves and from the pharyngeal plexus which supplies the pharynx. The communicating branches arise from the petrous ganglion and run to the superior cervical ganglion, to the auricular branch of the pneumogastric, forming a loop; and one from the nerve just below the ganglion joins the lingual branch of the facial nerve. The tonsillar branches arise from under the hyoglossus muscle and are distributed to and around the tonsils, forming a plexus from which branches to the fauces and soft palate are derived.

Meckel's or the sphenopalatine ganglion is situated in the sphenomaxillary fossa below the superior maxillary nerve. Its sensory root is derived from the superior maxillary through the nomaxillary nerve. Its motor root is derived from the facial through the great superficial petrosal nerve which assists the great deep petrosal in forming the Vidian nerve. Its sympathetic root, the deep great petrosal nerve just mentioned, is derived from the carotid plexus. The motor and sympathetic roots enter the sphenomaxillary fossa as the Vidian nerve. Its branches are classified as the ascending, descending, internal and posterior.

The ascending or orbital branches pass through the sphenomaxillary fissure and pierce the inner wall of the orbit to supply the sphenoid sinus and posterior ethmoid cells. The descending or palatine branches are derived mainly from the sphenopalatine branches of the superior maxillary nerve. They are divided into anterior, external, and posterior palatine nerves. The anterior or large nerve passes down in the posterior palatine canal together with the posterior palatine artery and appears on the hard palate at the posterior palatine foramen. It runs forward in a groove on the under surface of the

hard palate and joins the terminal portion of the nasopalatine nerve. It supplies the gums and the mucoperiosteum of the hard palate. While in the posterior palatine canal, it gives off two branches (inferior nasal nerves) which pierce the vertical plate of the palate bone to supply the mucous membrane of the back part of the middle and inferior meatuses and the inferior turbinated bone. The external or middle palatine nerve descends in the external palatine canal to supply the tonsil and adjacent mucous membrane. The posterior palatine nerve descends in the accessory palatine canal to supply the tonsil, adjacent mucous membrane, levator palati and azygos uvulae muscles. With the external palatine nerve it joins a branch from the glossopharyngeal nerve to form the *circulus tonsillaris*, a plexus around the tonsil. The internal or nasal branches supply the mucous membrane of the septum and the posterior part of the middle and superior turbinated bones and of the posterior ethmoid cells and the antrum of Highmore. The posterior branch or pharyngeal nerve runs backward through the pterygopalatine canal and supplies the upper part of the pharynx and the eustachian tube.

The lymphatics of the tonsil, which are numerous, empty into the lymphatic glands near the angle of the lower jaw and into the deep cervical lymphatic glands. The glands near the angle of the jaw are part of the chain of superficial glands of the neck which lie beneath the superficial layer of the deep cervical fascia in the posterior triangle. The efferent vessels of these glands empty into the inferior deep cervical glands. The deep lymphatic glands of the neck number from twenty to thirty and are situated along the internal jugular and subclavian veins. They are divided into a superior and inferior set. The superior set is situated along the internal jugular vein between the base of the skull and the bifurcation of the common carotid artery. These glands receive the efferent vessels from the internal maxillary lymphatic glands and some from the submaxillary lymphatic glands, the lymphatic vessels from the cranial cavity, the deep muscles of the upper part of the neck, the posterior part of the tongue, the middle portion of the pharynx, the upper part of the larynx, and the upper part of the thyroid body. Their efferent vessels empty into the glands of the inferior set. The inferior set is situated along the internal jugular vein below the bifurcation of the common carotid artery and extends outward into the subclavian triangle along the subclavian vein. These glands receive the efferent vessels from the superior deep cervical and the superficial cervical glands; the lymphatic vessels from the lower part of the thyroid body, lower part of the larynx, lower part of the pharynx, upper part of the trachea and esophagus, and lower part of the neck, and some of the lymphatic vessels from the axillary and infraclavicular glands. Their efferent vessels unite to form the jugular lymphatic trunk, which empties into the right lymphatic duct on the right side and into the thoracic duct on the left side. The right lymphatic duct is a short trunk which empties into the subclavian vein or the internal jugular veins at the junction of these veins. Its orifice is guarded by a double valve. The thoracic duct receives the lymphatic vessels from about three-fourths of the body and empties into the left subclavian vein or the left internal jugular vein near the junction of these veins.¹

Having now briefly considered the tonsillar nerve-supply and communications and its lymphatic connections, what part should we expect the tonsil to play in producing functional disturbances and neuralgias in structures, the nerves of which become involved by inflammation or pressure?

Direct and reflex pain may arise from an infected tonsil. This pain may be referred to the side of the face and ear, the patient complaining of soreness and discomfort in this region. This can be explained by the patient's reference of irritation to the superior maxillary and auricular branch of the pneumogastric which supply the face and external portions of the ear. Deep-seated pain in the ear may be caused by irritation of the tympanic branch of the glossopharyngeal.

Through the tonsillar lymphatic system, inflammation of glands or other structures in the neighborhood of the tonsil may likewise give rise to pain, direct or reflex, and soreness through involvement of nerves contiguous to these secondary glands, and pain may occur in the nose, teeth, gums, hard palate, or antrum of Highmore, sphenoid, ethmoid orbit, pharynx, larynx or trachea.

A peculiar hacking cough (which may be called a reflex tonsil cough) without expectoration is also a symptom of irritation of the superior laryngeal nerve because of an enlargement of lymphatic glands of the neck brought about in the same manner as it is evinced by an enlarged thyroid gland or aneurysm of the internal or external carotid artery.

Pressure on the superior laryngeal nerve by the tonsil or by secondary swelling of glands or other structures in this locality may cause, not alone cough, but recurrent momentary attacks of cessation of respiration and also expulsion of food. As the internal branch supplies the cricothyroid muscle, the contraction of which stretches the cords, paralysis of this nerve causes hoarseness or partial loss of voice.

The inferior deep cervical glands drain the superficial cervical glands into which the tonsil feeds. An infection of one of these deep lymphatic glands may involve the recurrent laryngeal, the motor nerve that supplies all the intrinsic muscles of the larynx except the cricothyroid. Moderate pressure on this nerve causes spasm of the muscles of the same side of the larynx, resulting in dyspnea and change of voice; greater pressure causes paralysis and alteration of the voice. Other disturbances which may result are defects of hearing, tinnitus aurium, and anesthesia of the pharynx and larynx, resulting in an entrance of food into the trachea with consequent choking or difficult swallowing.

The presumption is reasonable that involvement of the pneumogastric nerve by pressure or otherwise may give rise to disturbed digestion, and the relief which follows the removal of diseased or enlarged tonsils is more likely due to this fact than because of ingestion of septic material from the tonsils, the stomach readily disposing of such material without detriment to its function. Likewise, cardiac action may be disturbed, palpitation resulting.

The report of cases which are examples of the various phenomena here suggested could be appended, but would only serve to reiterate what has already been said. The careful observer who analyses the nervous anatomy in the region of the tonsil and the lymphatic glands draining the tonsil will be able to judge as to when he may attribute to the tonsil the various diseases, functional disturbances and neuralgias, which may arise from tonsillar infection.

CONCLUSION

In conclusion I wish to emphasize the following points:

1. Pain and soreness in the neck in the region of the tonsils usually arise from diseased tonsils.
2. Neuralgias in the region of the tonsil, ear, side of head, neck, nose, teeth, gums, or antrum of Highmore, may be and frequently are caused by diseased tonsils.
3. Disturbances of function through pressure on or inflammation of nerves may manifest itself in hoarseness, in loss of voice, cough, difficult deglutition, or entrance of food into trachea, with regurgitation, or in defects in hearing, dyspepsia and disturbed heart action.
4. Such diseased tonsils may not be and usually are not large or acutely inflamed. They must be carefully

1. Deaver: *Surgical Anatomy of the Head and Neck*, 1907.

examined by the surgeon who should pull them into view with a dull hook, determine whether the crypts contain detritus, whether the tonsils are sore to such manipulation, bleed easily, or otherwise give evidence of being diseased.

5. Such tonsils should be carefully and completely removed.

6. Relief of secondary infections usually follows immediately on removal, but, sometimes, only slowly, if neuritis or secondary glandular involvement is present.

7. In certain cases paralysis may be permanent.

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ABSTRACT OF DISCUSSION

DR. LAFAYETTE PAGE, Indianapolis: Many minor disturbances not generally recognized are due to diseased tonsils. These nervous disturbances about the throat and base of the skull, such as mastoid and occipital neuralgias, functional disturbances of the facial and other nerves emerging from the base of the skull, are often cured by removing the tonsils. A neurologist referred a case to me a year ago in which he thought there might be something in the condition of the tonsils producing functional paralysis of the facial nerve. There was nothing in the superficial appearance of the tonsil to indicate disease except slight enlargement. The tonsils were removed and I found deep down in the structure of the right tonsil a large cystic abscess. The nerve soon regained its function and there was no after occurrence of the paralysis. Whether this was due to pressure from enlarged glands or septic absorption it is difficult to say. Dr. Todd mentioned spasm of the glottis as not an uncommon reflex disturbance resulting from diseased tonsils, and I can recall a number of most persistent cases of this affection and among them two very distressing cases which were relieved by removal of diseased tonsils. In one of the patients the spasms came on at 2 or 3 o'clock in the morning, after a few hours' sleep, and often persisted until the patient became unconscious from suffocation. I am convinced that the tonsillar tissues are the most frequent cause of reflex spasms of the larynx. Many of the minor disturbances of the throat like laryngeal cough, constant desire to clear the throat, pharyngeal irritation, submaxillary pains and general discomfort of the throat are of tonsillar origin and are apt to be overlooked when the tonsils present no superficial evidence of disease. These are the patients who consume large quantities of throat lozenges and are liberal patrons of "patent medicines." As a prophylactic measure I think we make no mistake in removing the tonsils in our efforts to relieve this class of minor ailments.

DR. F. E. AUTEN, Belleville, Ill.: I had two cases of facial neuralgia that cleared up after removal of the tonsils which I believe were due to septic absorption. There is an individual in Belleville today that has had neuralgia for four years and the tonsils are very sensitive, but who refuses to have them taken out because her physician has told her that they were put there by God and should not be removed. I am satisfied that there is a most urgent need for investigation along this line and that it will pay us to give a good deal of attention to these neuralgias of the face and head.

DR. JOHN D. MACLAREN, Norman, Okla.: What was the condition of the sinuses of the cranial and facial bones in these cases? Dr. Killian has shown that sinusitis may produce the same symptoms as the ones of which the essayist speaks. Have there been any investigations which show that the faucial tonsil does drain into any other part of the lymphatic system? The peritonsillar tissue is thus drained.

DR. C. F. WELTY, San Francisco: I have had several of these cases of pain about the ear and in one case that I know of a mastoid operation was done though the pain was afterward relieved by enucleation of the tonsils. I want to make a suggestion in relation to this hoarseness. I would offer another solution of that; we know that in diseased tonsils there is a certain amount of mucus and mucopus, dropping into the pharynx and larynx all the time (another indication

for the tonsil operation) particularly in singers, who are not able to hold notes; this is because of the deposit of a particle of mucus on the cords, in other words they have unreliable voices.

DR. H. B. LEMERE, Omaha: A method of examination and treatment of these tonsils that has proved good in my experience, is the use of the Bier cups. The ordinary bulb provided with the instrument is not strong enough to draw out the concretions from the tonsils and I have used the suction produced by air pressure and the large bulb provided by the manufacturers. One treatment will not always relieve the condition. It is often necessary to use massage, which is very well borne by these patients. In many instances I have examined the tonsils without discovering anything at all and then with the suction apparatus I have drawn out large concretions. The method is efficient with highly nervous patients who will not submit to operation, though the treatment may have to be continued for some length of time. In some of these cases, after using suction, there is spasmodic contraction of the glottis, so that this condition should not always be ascribed to reflex action. In many of these patients the teeth and gums are at fault rather than the tonsils, and the tonsils may be infected from this source. The headaches, I think, are more apt to be due to disease of the nasal accessory cavities, therefore I do not think we should cut out the tonsils in every instance, but we should try to discover the primary infection which is not always in these organs.

DR. GEORGE F. COTT, Buffalo: In nine out of ten of these cases when there is pain in the head and face there is disease in the nasal accessory sinuses. If it is not found there it will probably be found in the tonsils.

DR. FRANK C. TODD, Minneapolis. The sinuses are of course responsible for many similar conditions. I did not mean to be understood as saying that all such symptoms are due to the tonsils but that the tonsils would produce such symptoms, and that we less frequently ascribe them to the tonsils than we should. For instance, for many years we have known that facial paralysis and other involvement of the nerves are due to enlarged thyroid gland, we have not ascribed them so much to enlarged tonsils.

POISONING FROM BITES OF COPPERHEAD SNAKES (*ANCISTRODON CONTORTRIX*)

PRENTISS WILLSON, M.D.
WASHINGTON, D. C.

Recently, through the courtesy of Dr. George Tully Vaughan, I saw in a ward of the Georgetown University Hospital the following case of poisoning from the bite of a copperhead:

The patient, a boy aged 13, had been playing under a bridge, and on reaching up to one of the timber supports felt a sharp stinging pain in the index finger of his left hand. No snake was seen. The hand began to swell rapidly and the boy hastened home and was then taken to see a physician, who diagnosed the case as one of snake-bite, placed a ligature around the forearm and finger, and advised that the boy be hurried to a hospital in Washington. This was done and the boy reached Washington from an adjoining state late in the afternoon of the day on which the injury was received. At this time the child was in a condition of considerable shock, in the causation of which the pain of the ligatures and fright probably played a considerable part. The pulse was slow and of low tension. The hand and arm were much swollen and somewhat discolored. The interns who received the patient very promptly instituted the accepted treatment for such cases, namely, a free incision reaching to the bone the whole length of the finger, the application of potassium permanganate crystals to the wound so made, and liberal stimulation with strychnin by hypodermic—everything, of course, under the usual aseptic precautions. The incision disclosed a certain amount of effused blood in the bitten finger and there were a few ecchymotic discolorations of the hand. A urinary-

sis made the day following the injury showed nothing abnormal—no albumin, blood, or blood-pigment present. The swelling rapidly began to disappear and the patient left the hospital in a few days with the wound in the finger healthy and healing by granulation. There can be no doubt that this was a case of snake-poisoning and due to the bite of a copperhead, since this is the only venomous species found in the District of Columbia or its immediate vicinity.

I have recently reported¹ another case of snake-bite due to the copperhead. This accident also occurred under a bridge. The reptile, a small copperhead, being mistaken for the common milk snake, *Ophibolus dolatus*, was carelessly picked up and inflicted a bite on the index finger. The patient was a man. There was no constitutional disturbance in this case and locally only swelling as far as the elbow with slight pain and a slight ecchymotic discoloration of the bitten finger. The day following, almost twenty-four hours after the injury and before being seen by me, the finger was incised and potassium permanganate applied. The wound so made suppurated and healed slowly by granulation.

Some few years ago I saw a patient who had been bitten on a finger by a copperhead while lifting a stone under which the reptile was concealed. Before coming under my observation the wound had been incised and treated by constant applications of a strong phenol solution. When first seen the man was in imminent danger of phenol gangrene of the bitten finger. As far as the effects of the venom were concerned, the arm was considerably swollen and mottled with ecchymotic discolorations extending to the shoulder. In this case also the constitutional disturbance had been of the most trivial character.

In a recent article² I have collected a series of 740 cases of poisoning from the bites of snakes indigenous to the United States. Of 566 cases in this series, in which the species of the snake causing the injury was definitely known, 97 cases, or 17 per cent., were due to the copperhead. The third of the cases mentioned above is included in these statistics, but the other two cases are not, making a total of 99 cases to be considered here. In these 99 cases there were 5 fatalities, a mortality rate of about 5 per cent.

Two fatal cases were reported by Kunkler.^{3, 4} Of these the first³ was in a boy aged 9, who received no treatment. This case is reported so very briefly that it is of little value. The second⁴ was in a boy of 6, bitten on the little toe. Death ensued on the fourth day. The local symptoms in the case were: On the first day, rapid swelling. On the second day the entire limb was swollen, the foot a shapeless mass, large vesicles over entire limb, and the course of lymphatics indicated by red lines. On the third day there was gangrene of the entire foot, extending rapidly, inflammation extending over groin and scrotum. The constitutional symptoms were, on the first day, nausea, cold skin, rigors, feeble pulse; second day, high fever, rigors, constant delirium, tongue dry and red, diarrhea; third day, condition worse, delirium continued; fourth day, convulsions and death. The treatment in this case consisted in free incision, labial suction, injections of a solution of iodine and potassium iodid locally, with ammonia and opium by mouth. It is perfectly obvious that death in this case was not due at all to the primary effects of the

venom, but to an engrafted septic process of severe grade. The etiologic significance of incision and labial suction on this septic process is, of course, problematic.

The three remaining fatalities in the series of 99 cases were reported to me in personal communications from Crum of Brunswick, Md., and Turner of Bluemont, Va. These physicians had not treated the cases, but knew of them and believed them to be authentic. They also expressed the opinion that the fatal result was due largely to the large amount of bad whisky consumed, and in one case, at least, to a marked condition of chronic alcoholism.

In regard to the absolute frequency of poisoning from the bite of the copperhead little that is definite can be said. Certainly the fact that I, with no special effort on my part and practicing in a large city, have seen three cases and know of two others having occurred recently in the immediate vicinity, would indicate that the condition cannot be so very rare. This reptile is widely distributed east of the Mississippi as far north as Massachusetts and possibly even Vermont. According to Stejneger,⁵ Kansas, Oklahoma and Texas seem to mark the western extent of its range, and it seems to be absent from the peninsular portion of Florida. In many localities where the rattlesnakes have been completely exterminated the copperhead is still found in considerable numbers. In regard to the relative frequency of bites by this species, there can be no doubt that, as stated in my first paper,² for reasons there presented, the figure of 17.1 per cent. as representing the proportion of cases due to the copperhead in 566 American cases (including the rattlesnakes, the copperhead, the water moccasin and coral snakes) is entirely too low.

The attitude of the profession regarding the danger from all cases of snake poisoning in this country is sadly in need of revision. The bites of the larger species of rattlesnakes and of the water moccasin are very dangerous, but fortunately they are comparatively rare. The danger from bites by the smaller rattlers and the copperhead is certainly slight. This being true, it is very important to see that the treatment is not only necessary but that it is not positively harmful. In the 99 cases considered only one of the 5 fatalities can be properly attributed to the direct activity of the venom. One of the other fatal cases was undoubtedly due to a septic infection to which the treatment of the injury predisposed. In the remaining three cases the alcoholic intoxication, added to the venom intoxication, undoubtedly contributed to the result. Thus a corrected mortality in these cases would be about 1 per cent., certainly small enough to indicate the slight danger to life from the venom itself. As far as the harmfulness of the accepted treatment is concerned, the three cases mentioned at the beginning of this paper may well be considered in evidence. In the first case the parents were forced to take the child on an expensive and entirely unnecessary journey. The finger was then unnecessarily opened. Such incisions are not without danger of subsequent deformity. In the second case again the finger was incised without reason, with a resulting infection which might have been serious. In the third case another finger was unnecessarily opened and nearly lost as a result of phenol gangrene. My conclusion from all this is that in poisoning from the bites of copperheads we have a condition of no great rarity in the eastern states, the danger from which is

1. Willson: Washington Med. Ann., 1910, viii, 409.

2. Willson: Arch. Int. Med., Chicago, 1908, i, 516.

3. Kunkler: Med. Counselor, Columbus, 1855, i, 481.

4. Kunkler: Cincinnati Lancet and Observer, 1859, new series, ii, 662.

5. Stejneger: The Poisonous Snakes of the United States, Report of U. S. Nat. Museum, 1893, Washington, 1895, p. 337.

greatly overestimated by both laity and profession; that the local treatment is unnecessarily severe and dangerous, in that it opens up, often without due regard to asepsis, tissues which are predisposed to septic infection and tends toward producing subsequent deformity. In other words, in these cases, as usually treated, we have a condition the treatment of which is worse than the disease.

Locally the ideal treatment consists in the application of a series of ligatures between the wound and the heart, tied tightly enough to impede the return flow of blood and lymph but not to cut off the circulation and obliterate the pulse. This procedure makes the absorption of venom slower and therefore less likely to overpower the resistance of the body to the poisoning. When first seen in many cases the extremity will be ligated tightly enough to cut off the circulation completely. These ligatures should be promptly relaxed, as gangrene has occurred under these circumstances. I am fully convinced that the best interest of the patients in the majority of these cases of copperhead poisoning will be best conserved by no interference with the wound beyond the application of an antiseptic occlusive dressing. In cases in which a young child has been bitten by a large snake and comes under treatment at once, dissection of the wound and the use of crystals of potassium permanganate under every aseptic precaution would, of course, be indicated. When the case is seen after the lapse of some time, with the venom in all probability well diffused through the tissues, I doubt if this treatment does any good even in such cases, and certainly not enough to compensate for the increased danger of ordinary septic infection.

The general treatment is simple but important. The copperhead venom produces a very marked fall in blood-pressure and exerts a selective depressing effect on the respiratory center. The low blood-pressure should be treated by the administration of adrenalin by intravenous injection, if the condition promises to be at all serious. Of course, in such cases as the second and third reported above such a procedure would be highly unnecessary. Strychnin is probably as likely to be useful as any other stimulant, especially in those cases where there is a tendency toward respiratory depression. Caffein and camphorated oil would seem to be indicated on theoretical grounds, in bad cases, as in young children. The recumbent posture with the head low and external heat should be used. Bandaging the extremities, abdominal compression by a tight binder, and artificial respiration may be tried in very serious cases, but such cases will be very rare except in young children.

In conclusion I should like to urge on the members of the profession who have the opportunity of seeing these cases of copperhead bite, that they should be reported. Most of them seem like very trivial affairs, but it is for this very reason, in order to impress this fact on the profession, that they should be reported to the journals.

The Spinal Sign of Serofibrinous Pleurisy.—F. Ramond found the iliocostal and longissimus dorsi muscles constantly enlarged on the side corresponding to the pleural lesion in 76 cases of primary pleurisy and in 18 out of 24 secondary cases. The muscles below the twelfth rib can be felt much larger and more elastic on this side than on the other as the patient bends forward or to the side and the groove at the side of the spine is palpated. His communication on the subject was published in the *Bull. de la Soc. méd. des hôp.*, 1910, xxvii, 747.

ENDONASAL METHOD OF REMOVAL OF HYPOPHYSEAL TUMORS

WITH REPORT OF TWO SUCCESSFUL CASES

DR. OSKAR HIRSCH
VIENNA

In his article on the surgery of the hypophysis from the standpoint of the rhinologist, Dr. J. M. West¹ mentioned the fact that "heretofore rhinologists have been interested in the hypophysis only in a general way." Later on in his article he describes a method by which he resects the septum endonasally, thereby reaching the sphenoid, which he opens widely, and through this opening reaches the hypophysis.

Although Dr. West searched the German literature with great care concerning the operative treatment of hypophysis tumors, he neglected those publications which described the endonasal method, which was the most important to him.

In March, 1909, I published a new method² of endonasal operation for the removal of hypophyseal tumors. This method is based on Hajek's³ radical operation on the sphenoid sinus and is done in several sittings. It is performed in the following way:

Operation.—Under cocain anesthesia the middle turbinate is removed at the first sitting. After a few days, again under cocain anesthesia the anterior and posterior ethmoidal cells are removed, by which operative procedure the entire anterior wall of the sphenoidal cavity is exposed. After another interval of several days, again under cocain anesthesia, the anterior wall of the sphenoid is removed *in toto*. Here one may again wait several days before beginning the last step of the operation, or as desired, may continue with the opening of the hypophyseal prominence and partially remove the hypophysis.

This is the method I demonstrated on the cadaver at the meeting of the Gesellschaft der Aerzte in Wien in March, 1909.⁴

In my first publication, and also in my demonstration, I gave reasons why my method, done under local anesthesia, should supersede the method of Schloffer.⁵ My arguments in short are the following:

1. By the method of Schloffer it was impossible up to that time to remove the tumor of the hypophysis completely.

2. The removal of small portions of the tumor has been enough to influence the course of the disease favorably.

3. By my method it is possible to remove the tumor partially and so to get equally as good a result as one gets by the major surgical procedure of Schloffer.

My suggestion was taken skeptically. In the following year I had no opportunity of demonstrating the feasibility of my method on the living. But through the courtesy of Hofrat v. Wagner it was first possible for me to operate by my method on a patient suffering from tumor of the hypophysis and thus give my proposal a practical value.

History.—The patient was a woman aged 35, from Hofrat v. Wagner's clinic, who for seven years had epileptoid attacks, and for one year suffered from unbearable headaches and disturbances of sight. The Roentgen examination, made by Doctor Dr. Schüller, showed an enlargement of the sella turcica.

1. West, J. M.: *Arch. f. Laryngol. u. Rhinol.*, xxiii, 288; *The Surgery of the Hypophysis from the Standpoint of the Rhinologist*, THE JOURNAL A. M. A., April 2, 1910, p. 1132.

2. *Wein. med. Wehnschr.*, 1909, No. 12, p. 636.

3. Hajek: *Arch. f. Laryngol.*, xvi, 105.

4. *Wien. klin. Wehnschr.*, April 1, 1909, p. 473.

5. Schloffer, H.: *Wien. klin. Wehnschr.*, 1907, pp. 621, 1075.

and an erosion of the clinoid processes, which confirmed the diagnosis of a hypophysis tumor. Inasmuch as, through the pressure of the tumor on the optic nerve, the left eye was blind and the right eye was in imminent danger of becoming so, the proposal to remove the tumor was made and accepted by the patient.

Operation.—With permission of Hofrat v. Wagner I used in this case the method of operation published by me in 1909.² The operation was done under cocaine anesthesia endonasally and in several sittings. The course of the operation in this patient was as follows: In the first sitting I removed, under cocaine anesthesia, the middle turbinate of the left side, which is an insignificant procedure. After several days in a second sitting I removed the ethmoid cells. This operation was also done under cocaine anesthesia without any hemorrhage worthy of mention. After a several days' pause I resected in a third sitting the anterior wall of the sphenoidal cavity, again under a local anesthetic without pain or hemorrhage. After this operation the hypophyseal prominence, reaching deep into the sphenoidal cavity, was visible. The previously described procedures are commonly used by rhinologists in the treatment of chronic empyema of the sphenoidal sinus. The new feature in my method is the opening of the hypophyseal prominence with a chisel and the exposure of the tumor. For this operation I also chose local anesthesia. After cocaineizing the nose and sphenoidal sinus with a 20 per cent. cocaine solution I placed on the hypophyseal prominence a small chisel and by careful hammering made a transverse fissure in the bony envelope of the hypophysis tumor. Into this fissure I placed an elevator that is made in the form of a right angle and broke away the bony covering of the hypophyseal prominence in a rather large area. Through this opening in the bone the bluish dura became visible. Although this operation was done without hemorrhage or pain, I did not continue, as I wanted to see if this opening would not suffice to relieve the disturbances caused by the pressure of the tumor. This expectation was not realized and after several days it became necessary to lay bare the tumor itself.

I again cocaineized the nose and the sphenoidal cavity with a 20 per cent. cocaine solution and epinephrin and soon found the opening I had made in the hypophyseal prominence and with a knife opened the dura along the sphenoidal septum and pulled it away laterally as a flap. Immediately the gray hypophysis tumor arched through the opening into the sphenoidal cavity. I cut into the tumor with a knife and immediately a blood-tinged fluid ran from the nose and mouth. As I again examined the tumor it was smaller and pulsated at the wound margins, between which, on probing, I came into a cavity. I removed a small piece of the cyst wall and did not tampon, but merely placed a small ball of cotton in the anterior nares of the operated side of the nose.

Subsequent Course.—Immediately following the operation the patient's head felt much relieved. She was so slightly disturbed by the operation that she was able to walk with a nurse from the operating room to her ward. Her condition following the operation of March 8, 1910, remained good. She enjoys the best of health, is entirely free from headache and her temperature was always normal. The vision of the right eye improved in two days following the operation from 1/30 to 4/30, and two weeks later was 9/60; at the time of writing this paper her vision was 6/10. The field of vision also has improved greatly; the left eye remains amaurotic.

Examination of Specimen.—The microscopic examination of the excised cyst wall (Dr. Erdheim) showed hypophysis tissue; of tumor tissue there was nothing to be seen. The examination of the cyst contents showed phagocytic elements and blood pigment, a sign of an old hemorrhage.

The treatment of the above-mentioned case took more than five weeks. If one subtracts a longer pause, which was made in order to have some new instruments constructed, and if in the future one does several stages of the operations in one sitting, there will still remain two to three weeks as the necessary time to complete the treatment of a case.

As it may be possible that the progressive symptoms of a case, especially the optic atrophy, will not allow so long a period of treatment, I searched for a method in which the operation of hypophysis tumor could be performed at one sitting.

Influenced by Kocher's³ operation, I made experiments on the cadaver to show that one could open endonasally both sphenoidal cavities and the hypophyseal prominence under local anesthesia in one sitting and reduce the danger of infection to a minimum.

This method which I will describe later is a continuation of Killian's⁴ submucous window-resection of the nasal septum, but includes the resection of the rostrum sphenoidale; also the anterior wall of both sphenoidal cavities and of the sphenoidal septum, by which the hypophyseal prominence is exposed in a satisfactory manner. The technic of this method in practice would be the following:

The mucous membrane of both sides of the nasal septum is cocaineized with a 20 per cent. cocaine solution and infiltrated in its entire extent with Schleich solution. An incision is now made along the anterior edge of the quadrangular cartilage, through the mucous membrane of one side, down to the cartilage, and the mucous membrane is raised by means of a raspatorium, together with perichondrium and periosteum, from the cartilage and bone. The cartilage is now incised $\frac{1}{2}$ cm. from the original incision and a raspatorium slipped between the perichondrium and the cartilage and carried to the posterior border of the septum; the mucous membrane, together with perichondrium and periosteum, are now raised from cartilage and bone on this side. The membranes are now held apart by a nasal speculum and in this way a medial nasal cavity formed in which one sees the bare cartilage. This is removed with one sweep of the cartilage knife and the vomer and the perpendicular plate of the ethmoid are resected with the aid of a bone forceps. Up to the present this operation is identical with Killian's submucous septum-resection.

To bare the anterior wall of the sphenoidal cavity it is necessary that the mucous membrane of the vomer where it joins the sphenoid be also separated from the bone. This is very easily done, after which the mucous membrane is separated from the anterior surface of the sphenoid on both sides as far as the ostium sphenoidale, so that the raspatorium falls into the sphenoidal cavity. Now, through this sack of mucous membrane one removes posterior part of the vomer and the rostrum sphenoidale with the bone forceps, and with several strokes of a chisel one breaks through the anterior wall of the sphenoid cavity and after removing the sphenoidal septum one sees the hypophyseal prominence in its entirety.

After opening the sella turcica and the dura of the hypophysis, respectively, the hypophyseal tumor lies free in the sphenoidal cavity.

By using this method I have opened the sella turcica on a cadaver whose skull had not been previously opened. Dr. Erdheim, an assistant at the Vienna Pathologic-Anatomic Institute, was kind enough to dissect the skull and found that by using the above-mentioned method I had made a large opening in the floor of the sella turcica without having injured any of the important neighboring organs (optic nerve, cavernous sinus, etc.)

Should the middle turbinate extend too far into the nose so that the mucous membrane of the septum cannot be separated from it far enough, they must be removed several days before beginning the real hypophysis operation.

Some time ago I operated in a case of hypophyseal tumor by the last-mentioned method (submucous-resection of the septum of the nose and of the sphenoidal cavities). Up to the present time the patient's general condition is good and she is without fever.

daily subjected to pressure. What surgeon of experience but has seen many cases of carcinoma or sarcoma commence in warts, moles, eczematous patches and fissures? It is my firm conviction that by timely surgery cancer could be prevented in a large percentage of cases. Most of the cases of cancer cured by surgery are those which are cured before they come, plus those which are cured before the diagnosis can be made save by the microscope; and herein lies the cause of cancer quacks' continued popularity: "Didn't he cure Belinda Brown of a cancer which commenced just like that one which killed Sarah Smith?" The point I wish to make is this: that by removing causes of irritation in the shape of gastric ulcers, lacerated cervixes, phimoses, gall-stones, kidney-stones, warts, moles and other non-malignant tumors and causes of irritation, surgery can prevent more deaths from cancer than it can by the removal of cancerous conditions after such a diagnosis is possible. I venture to suggest here an addition to our cancer vocabulary, viz., potential cancer. Through a personal communication from Dr. H. K. Mouser⁵ I learned that of the epileptics in the Indiana School for Feeble-Minded Youth 17.64 per cent. have a history of difficult labor, and that of all the inmates the percentage of difficult labor in 727 cases in which the birth history is given is 11.69. Practically all children who suffer from cerebral hemorrhage produced by birth injuries are permanently disabled, and 30 per cent. of those who recover develop epilepsy.⁶ Ten per cent. of the cases of infantile convulsions and practically all cases of congenital palsy are due to abnormal labor.

What does "abnormal" and "difficult" labor mean in these instances? It means version, high forceps, and labor terminated by the unaided forces of Nature after an unconscionable lapse of time and expenditure of maternal energy. In these so-called abnormal labors the maternal mortality is 1.14 per cent., the maternal morbidity is 42 per cent.; over 20 per cent. of the children die,⁷ and 10 per cent. of those that live are seriously injured as a result of birth injuries.⁸ Couple these facts with those just given concerning fetal morbidity in this class of labors, and see if you do not agree with me in the assertion that timely, courageous and intelligent obstetric surgery can prevent much of this morbidity and mortality. Some experience and a careful study of the subject forces me to the conclusion that Cesarean section in competent hands could prevent much of this loss of life and usefulness.

In the preparation of a paper on Cesarean section for the Southern Surgical and Gynecological Association⁹ I gathered through correspondence the opinions of a number of men of experience on this subject. Permit me to quote four, which fairly represent the concensus of opinion of the whole.

Newell of Boston says:

In the first place, the elective operation done before labor, in the absence of complicating disease, with the patient in good condition, is, in competent hands, a safe surgical procedure, and I believe the morbidity in these cases is very slight and certainly very much less than could be claimed for the ordinary obstetrical operation in the same class.

De Lee thinks that "Cesarean section ought to have a wider field and should replace many of the brutal forceps and version operations." Davis says:

Elective Cesarean section by competent operators, on uninjured and uninfected patients in good condition, gives at the present time the best chance of life and health to the mother and child in cases where mechanical disproportion or physiologic incompetence to endure labor are markedly present.

Hirst (who has done 80 Cesarean sections, with 5 deaths) says:

My recent experience convinces me that Cesarean sections may be done with impunity after hours of labor, if the woman is not infected and the technic of the operation is as good as it ought to be; the mortality even in infected cases need not necessarily be excessively high.

That prompt surgical treatment in birth injuries will prevent many deaths, and much invalidism, most of which is worse than death, no one who has studied the subject will deny.

As intimated in the beginning, this paper can be little more than suggestive, but if it is instrumental in arousing an interest in the subject commensurate with its importance, then my object has been accomplished.

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A CUTANEOUS ANAPHYLACTIC REACTION AS A CONTRA-INDICATION TO THE ADMINISTRATION OF ANTITOXIN *

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BALTIMORE

Almost every physician who frequently has occasion to administer antitoxic serum has seen more or less serious symptoms follow the injection in individuals who months or even years previously have received serum. These symptoms usually develop within twenty-four hours, often in less time, and may be slight, consisting of one or several of the following: erythema, urticaria, swelling of lymph-glands, joint pains, fever, or they may be very grave, consisting of the above in an exaggerated form with profound collapse, albuminuria and bloody stools.

It seems very desirable to be able to determine in advance those cases in which a second administration of serum will precipitate dangerous anaphylactic manifestations. In a recent paper Knox, Moss and Brown¹ described a local cutaneous anaphylactic reaction which indicates hypersensitiveness in rabbits to horse serum. Thinking that this test might give the desired information in the case of patients requiring a second injection of antitoxin after a lapse of sufficient time for the development of hypersensitiveness, I have applied it in thirty cases.

Before discussing the results, the test, which is extremely simple and easy to perform, may be described as follows: The skin of the non-hairy, inner side of the upper arm is cleansed with alcohol, dried with a sterile sponge and 0.01 c.c. normal horse-serum, preserved with a few drops of chloroform, is injected intradermally. A fine needle and a hypodermic syringe divided into hundredths of a cubic centimeter is convenient for this purpose, and undiluted serum should be used. A positive reaction consists usually of an area of inflammation

5. Internat. Jour. Surg., September, 1909, p. 269.

6. Progressive Med., March, 1907.

7. Progressive Med., March, 1908.

8. Porter, M. F.: Elective Cesarean Section, THE JOURNAL A. M. A., March 20, 1909, p. 937.

* From the Research Laboratory, Phipps Dispensary, Johns Hopkins Hospital.

1. Knox, J. H. M., Moss, W. L., and Brown, G. L.: Subcutaneous Reaction of Rabbits to Horse Serum, Jour. Exper. Med., 1910, xii, 562.

1 to 2 cm. in diameter, which comes on within twenty-four hours and disappears in two or three days. It sometimes happens that the entire reaction is over in twenty-four hours, so that an observation should be made at the end of about ten hours after the injection. The reaction is purely local at the site of injection and in no case have any constitutional symptoms or discomfort resulted. With a negative reaction nothing is to be observed except perhaps the needle-prick, and if care be taken to introduce the needle sufficiently superficially even this may not be found.

Of the thirty individuals tested nine had never received any form of antitoxin and all nine gave a negative reaction. The remaining twenty-one individuals had received antitoxin from four months to ten years previously. Ten of these gave positive reactions and eleven negative. The result does not seem to depend on the length of time which has elapsed since the injection of antitoxin, as the positive and negative reactions were about equally distributed as regards the time interval since injection. It is hardly to be expected that all ten of the patients giving a positive skin reaction would develop serious anaphylactic symptoms should they receive another therapeutic or prophylactic dose of antitoxin, but of the ten positive reactions especial attention must be called to three which differed markedly from the remainder. These set in with explosive suddenness, one at the end of about six hours, another after about eight hours and the third after about twenty-four hours. Immediately surrounding the site of injection there suddenly appeared an urticarial wheal about 1.5 cm. in diameter and surrounding this an areola of inflammation about 5 to 6 cm. in diameter. The appearance of the reaction was accompanied by marked itching, but no other manifestation. These three reactions subsided as the others did, except, perhaps, in less time. It would seem that reactions of the nature just described might indicate danger from any further injection of antitoxic serum.

The value of this test can be determined only by injecting therapeutic or prophylactic doses of antitoxin in individuals who give a positive skin reaction. Since the value is undetermined, patients who give a positive skin reaction must present themselves in whom the indication for the administration of antitoxin is sufficiently urgent to overbalance any possible fears we may have of serious anaphylactic manifestations resulting.

I have presented this reaction before having tested it out fully, because of the length of time which would be required to do it in this hospital, owing to the fact that at present we have no ward for contagious diseases such as diphtheria. I would suggest that wherever a delay of twenty-four hours is permissible before the injection of antitoxin, this test be performed; if the patient gives the ordinary positive reaction and the indication for antitoxin is very slight it might be safer to withhold the antitoxin, but if the indication is fairly strong the patient should receive the injection. In the presence of a positive reaction, such as described in the three cases above, I should hesitate to give antitoxin except on very urgent indications; however, the value of the test must be finally determined by just such cases, and it is to be hoped that any who carry out the test will report the results in order that we may determine if the reaction gives us a means of knowing in advance those cases in which second injections of antitoxin are contraindicated

and thereby prevent the lamentable accidents which sometimes now occur.

In conclusion I would say that, so far as I am aware, no such test as I have proposed has been recorded, although I make no claims to having gone through the enormous literature which has appeared in the last few years on the subject of anaphylaxis.

LARGE ACCIDENTAL VULVAR HEMATOMA AT TERM

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Accident.—On July 4, Mrs. A. R., aged 39, quintipara, pregnant at term, while milking, was knocked down by a cow, and struck the vulva on a corner of a box. Immediately a vulvar tumor appeared, with lancinating pain, faintness and shock; the swelling increased until she was carried to the house and placed prone. Patient was seen in half an hour; pulse was 110, respiration 30, temperature 98.

Examination.—There was found a tense globular tumor at vulva, as large as the head of a 9-pound child, elastic in consistency, purple in color, painful to the touch, and located in the right labium major. The vulvar orifice was displaced to the left, barely admitting a finger, which outlined the tumor for $3\frac{1}{2}$ inches, along the bulging right vaginal wall. No varices were apparent.

Treatment.—Under chloroform anesthesia, administered by Dr. George S. Tweedie, and with aseptic precautions, the tumor was incised, for one inch and a half, at the junction of the labial skin and vaginal membrane, where rupture appeared imminent, and over two pints of clotted blood were evacuated by the finger, with free continued hemorrhage. The cavity was irrigated and packed with sterile gauze, and a snug pudendal pad applied. The usual restorative measures were employed. The packing was partially removed next day with irrigation. On the day following, at 9:30 a. m., the remainder was removed and the cavity irrigated and dressed.

Labor.—At 2 p. m., July 6, labor commenced and a robust male child was born at 2.20. On my arrival at 2:30, examination showed that an irregular portion of right vaginal wall, about 2 inches by 1 inch, had been torn off by the descent of the head. Placenta was expelled by Credé's method. Free hemorrhage was controlled by ergot, fundal kneading, and hot irrigation.

The puerperium was normal, without a rise of temperature. The vaginal tear was irrigated and dressed daily.

This case is considered worthy of reporting for these reasons: a large, accidental, labial hematoma near term, not inducing labor, which came on naturally, yet precipitately, two days later; the partial destruction of the right vaginal wall by the descent of the head; the normal convalescence under adverse conditions.

Treatment of Angina Pectoris.—F. G. Thomson, in the *Medical Press and Circular*, states that the treatment of an actual attack of angina pectoris demands three considerations: (1) Rest, to promote restoration of heart power; (2) vasodilators, to diminish cardiac strain; and (3) morphin, to relieve the pain when this is not achieved by rest and amyl nitrite or nitroglycerin. In cases of severe spasmodic pain in middle-aged people, amyl nitrite, by lowering arterial tension, may provide instant relief; but in those cases of advanced fibroid degeneration in old people in which severe, prolonged, frequently-occurring attacks of cardiac pain render life a burden, the only drug which seems to give relief is morphin, or failing that, the administration of chloroform. In either case the relief is only temporary, and the repeated administration of one or other of these drugs may be necessary to render bearable the closing stages of a distressing and painful condition.

Therapeutics

INTESTINAL INDIGESTION

Whether there is more or less continued diarrhea or whether diarrhea is intermittent, or whether there is intestinal putrefaction, especially colon putrefaction, or simply intestinal fermentation with a large production of intestinal gas, in any of these conditions, radical changes in diet have long been found of value. As such a condition cannot long persist without causing various disturbances, such as coated tongue, bad taste in the mouth, bad breath, headache, sleepiness in the daytime and restless sleep at night, abnormal perspiration, often irritation of the kidney and even of the bladder, intestinal indigestion should be radically treated in its incipency.

It has long been shown that certain bacteria are normal in the intestine, and certain bacteria normally there cause more or less serious symptoms of toxemia if they become enormously multiplied, or under favorable conditions in the intestines for their growth, produce sufficient toxins to cause the symptoms just enumerated. Also, there may develop in the intestines bacteria which are absolutely foreign to the intestines, i. e., which are distinctly pathologic. It has also been shown that certain bacteria thrive best on protein digestive products, or rather on products of protein indigestion, and if this pabulum is removed the germs die a natural death. This same is true of certain germs that grow best in the carbohydrate by-products or digestive products, and, here again, if this pabulum is changed the germs die. The cause of putrefaction in the intestines in adults is more likely to be the results of protein decomposition. This knowledge is not frequently enough utilized in the treatment of these intestinal indigestions.

Lately C. A. Herter (*Internationale Beiträge zur Path. und Therap. der Ernährungs-Störungen*, 1910, I, No. 3, p. 275) has carefully noted the results of rapid changes in the diets of men, monkeys and cats, and finds that changes from a dominant protein diet to one in which carbohydrates preponderate were followed by definite and consistent changes in physiologic conditions in three distinct directions, viz.: a. in the nature of the intestinal bacterial flora; b, in the putrefactive products of the feces and the urine; c, in the clinical conditions.

A. Nature of Intestinal Bacterial Flora.—The chief characteristic of the dominantly protein diet is the development of a strongly prophylactic type of bacterial organisms. The mixed fecal flora in such a diet contains a high proportion of bacteria capable of proteolyzing casein actively, and of liquefying gelatin. A large proportion of the organisms may be classed in the *B. subtilis* group. In the experiments on men and cats *B. aerogenes capsulatus* also appeared. The organisms on the protein diet also possessed the power of forming an abundance of gas in dextrose bouillon. After fermentation for twenty-four hours, the gas in the fermentation tube amounted to from 60 to 90 per cent.

On changing from the protein to the carbohydrate diet, the flora undergoes a rapid change with substitution of an acidophilic, feebly proteolyzing type. Cultural investigations have shown that these organisms are allied to those characteristic of normal nurslings. The mixed fecal flora from the carbohydrate diet produces very little gas in sugar bouillon fermentation tubes

B. Putrefactive Products of the Feces and the Urine.—A well marked feature of the protein diet is the occurrence of neutral or alkaline stools containing products of putrefaction, such as indol, skatol, phenol, aromatic oxyacids, indolacetic acid and hydrogen sulphid. On the carbohydrate diet all of these substances are greatly reduced in amount, or are entirely absent. Wholly in accord with these results is the fact that the indican and the aromatic oxyacids of the urine are markedly diminished during the carbohydrate diet, and may become undetectable.

C. Clinical Conditions.—The clinical conditions were most significant in experiments on monkeys, where Herter was able to feed exclusively on hard boiled eggs for considerable periods of time. In these animals, as the proteolytic bacteria became dominant in the alimentary canal, a state of drowsiness developed. The animal remained on its perch, holding its head in its hands. It grew stupid, responded poorly to outside stimuli, and in general showed but little interest in its surroundings. As carbohydrate was added to the diet, both the psychical and physical attitude of the animal underwent a marked change. The posture became erect and the usual brightness and alertness returned. Herter believes the symptoms observed on the protein diet were signs of intoxication brought about through the excessive use of protein.

The bacterial changes in the intestine, the products of putrefaction and the clinical conditions may thus be varied at will by changing the amounts of protein and carbohydrate in the diet. It seems probable that in conditions of disease of the intestinal tract where certain undesirable bacteria abound that frequent alterations in the chemical nature of the diet may become beneficial by interfering with the establishment of any one type of bacteria in the intestine. This view harmonizes with the clinical results often obtained from variations in the diet in infancy and in adult life.

INTESTINAL INDIGESTION IN CHILDREN

Drs. John L. Morse and Fritz E. Talbot (*American Journal of the Medical Sciences*, June, 1910) have made a study of the stools of children who have had intestinal indigestion or who did not get the value of the food which they ingested. They have studied the proposition from the standpoint of actual nutrition values of the various foods and what the child needs in calories, and they find that an ordinary child four years of age needs 1,200 calories; eight years old, 1,400 calories; and twelve years old 1,600 every twenty-four hours. They believe that a child four years old needs 55 grams of protein; a child eight years old, 60 grams, and a child twelve years old, 75 grams every twenty-four hours; 5 grams may be added to the above average for boys and perhaps 5 grams deducted from the above average for girls. These are the average protein needs, and not the minimum protein need, which is roughly about two-thirds of the average amount.

These investigators find that fats may be entirely replaced by carbohydrates for a considerable period without doing harm, but there is a certain amount of risk in replacing carbohydrates entirely by fats because of the danger of causing acid intoxication or acidosis. They present a very graphic table of food values, to which the reader is referred. Suffice it to state here that a quart of ordinary milk represents 670 calories; a tablespoonful of cooked oatmeal and most other cereals, 25 calories; a tablespoonful of cooked rice, 45 calories; a potato the

size of a large egg, 100 calories; an ounce of meat, 60 calories; an ounce of beef juice, 10 calories; an ounce of butter, 225 calories; a full teaspoon of cane sugar, 25 calories; a slice of bread, 75 calories, etc.

A normal child's stool should be "homogeneous in consistency; a lumpy or mushy condition is pathologic." When lumps are present in the stools there is an excess of milk, meat or eggs in the diet, or the reverse, the child is under-fed. The child may have these lumpy stools when he is apparently getting enough in bulk to eat with a large indigestible residue but really not enough of actual nutriment. Improper chewing of food may give indigestible masses. A normal child's stool reacts to litmus paper weakly alkaline, weakly amphoteric (weakly alkaline and weakly acid), or neutral. "A very strong alkaline reaction, especially if accompanied by a putrefactive odor, suggests protein putrefaction. A strong acid reaction associated with a rancid odor suggests disturbances in the digestion of fat; if associated with the odor of lactic or acetic acid, suggests disturbance in the digestion of carbohydrates. In the latter case there is likely to be bubbles or a frothy condition."

For classification Morse and Talbot suggest dividing the stools into fatty stools, carbohydrate stools and catarrhal stools. "The fatty stools are greenish or white in color, dry or of clay-like or creamy consistency, acid in reaction, and of a rancid odor. The carbohydrate stools are brown or golden yellow in color, salve-like in consistency, acid in reaction, and acid or sour in odor. The catarrhal stools show a basis of mucus and often have a foul odor indicating protein putrefaction." The authors describe the microscopic appearance and chemical staining of the stools, but it is not the object of this abstract to discuss this detail, but to present a ready method of ascertaining, approximately at least, the character of the child's digestion. Test meals or test daily diets are not essential. It is essential, however, to know what food the child has eaten for twenty-four, or better, forty-eight hours, preceding the macroscopic and reaction study of the stool.

Morse and Talbot found in their investigations that many times the difficulties in digestion were due more to an excess in the quantity of food than in errors in quality. Brief abstracts of two of the cases that they present are of therapeutic value.

A boy $4\frac{1}{2}$ years old had five or six loose movements of the bowels a day and was losing weight. Investigation showed that he was over-fed, that the caloric value of his food was nearly twice what was needed. This was corrected, the caloric value of his food being reduced to what was the normal average, and the movements immediately dropped to two a day and the child began to increase in weight.

A boy 2 years of age had been losing color and weight for about three months, and an estimate of the food taken showed he was getting 1,200 calories per day, where approximately his needs were for only 1,000 per day. At a given date his diet for twenty-four hours consisted of 34 ounces of milk, 4 tablespoonfuls of cereal, 2 tablespoonfuls of beef juice, 3 slices of bread and a baked potato. This gave him about 1,150 calories furnished by 40 grams of fat, 130 grams of carbohydrates and 50 grams of protein. Examination of his stools, two a day, showed them to be yellow, semisolid, of foul odor, of alkaline reaction and to contain a small amount of mucus. The microscope showed that starch was not well digested, while fat was. The starch part of the food was then cut down and meat added to his diet,

and one week after the above diet it was changed to 33 ounces of milk, 2 tablespoonfuls of cereal, 2 slices of bread, a baked potato and 2 small slices of chicken. This represented about 1,050 calories furnished by about 40 grams of fat, 105 grams of carbohydrates and 50 grams of protein. His movements then became brown, soft, of uniform consistency, alkaline in reaction and contained but a small amount of mucus. The microscope showed a slight excess of neutral fat and fatty acids but no excess of meat fibers, and there was no undigested starch. The amount of milk was then cut down and the starch slightly increased, and from this time on the child has continued a steady improvement in every way.

Several instances are cited where too much fat and too much milk were given to children. Examination of the stools, with the child's diet being known, suggested proper correction. Improvement followed as proof of the needed change in diet.

The object of this article is to urge that a little more time be given by the physician in inquiring into the exact diet of a child with intestinal indigestion, or a child that is losing weight; that he personally examine one or two of the stools; that he have on hand, readily accessible, a table of the protein and caloric value of foods and a table of estimation of the average needs of a child of various ages; that he more carefully suggest or arrange the diet that is probably correct for the child, and then, week by week, modify that diet to the child's individuality. If this amount of care is taken less medicine, less tonics, less astringents, less bismuth, less lime and less change of climate will be needed to rescue the young child from more serious conditions than that we are discussing.

CHRONIC COLITIS

Any treatment that has proved of value in chronic inflammation of the large intestines should be noted. Ludwig von Aldor (*Therapeutische Monatshefte*, 1910, xxiv, No. 4, p. 171), after several years of investigation, has come to the conclusion that flesh food should be largely or entirely removed from the diet during chronic colitis. He also has found benefit from the local application of hot gelatin solutions. For this purpose the patient receives a rinsing enema of a pint of water at a temperature of 77 to 83 F. (25 to 28 C.) one hour before the gelatin injection. He is then made to rest in bed for at least half an hour. From 40 to 80 c.c. ($1\frac{1}{3}$ - $2\frac{2}{3}$ fluid ounces) of a 10 per cent. gelatin at a temperature of 113 to 125 F. (45 to 52 C.) are then injected, with the patient lying in bed on his left side. The abdomen is covered with a hot compress and the patient is kept perfectly quiet for two hours. In many cases the gelatin is completely retained by this procedure. Von Aldor puts much emphasis on the high temperature of the gelatin solution. A temperature of 113 to 122 F. (45 to 50 C.) is very easily borne by the large intestine.

Usually the patient passes a well-formed stool several hours after the injection. The injections are given every day until complete recovery occurs, which is in from three to fourteen days. This treatment is absolutely harmless and has proved effective in all cases in which the author has tried it. He believes that the therapeutic value is due:

1. To the high temperature.
2. To the use of non-fermenting substance for injection.
3. To the absorption and mechanical removal of the bacteria and intestinal excretions by the gelatin.

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Now, the surprising sequel is that the presumptive improvement in the character of the Washington water-supply due to the construction of the filter did not lead at once to a noteworthy reduction of the typhoid death-rate. Contrary to the experience of Lawrence, Albany and other American cities which have installed slow sand filters, the typhoid rate in Washington showed no immediate decline, but was even somewhat higher the year following the use of the filter than in the three years immediately preceding! This unexpected outcome sowed seeds of dissension in the councils of sanitarians. Some were at once for throwing over slow sand filtration as a method of water purification; others maintained that water could never have been an important factor in the causation of typhoid fever in Wash-

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This well-known sanitarian, in the article just cited, avows his belief that "the vast majority of the native primary cases of typhoid fever in Washington otherwise unaccounted for are due to infection conveyed to them by the Washington water." It may be so. Every one knows how difficult it is to prove the negative of such a proposition. At the same time, if analogy and experience count for anything, the evidence, in order to be conclusive, not only must demonstrate the continued possibility of infection from the improved water-supply, but must practically exclude the possibility of infection through other channels. On the one hand, as we have mentioned before,² there is a possibility that carriers, infected by a previous polluted water-supply, may hand on the infection after the water has been purified and made safe. On the other, no one has yet brought forward any evidence to show that the Washington filters are more poorly constructed or more carelessly operated than the similar filters in Lawrence, Albany, Hamburg or London. It will be hard to convince sanitary authorities generally that a filtered water, in which only one out of seventy 10 c.c. samples contained the colon bacillus, is not a fairly safe water as filtered waters go. Evidence rather than assertion is needed. Hill suggests that a few months' sterilization of the water with hypochlorites would eliminate all doubt concerning water infection. Some such procedure as this would seem well worth while, since competent judges of the situation are so completely at variance.

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1. Hill, H. W.: *Am. Jour. Pub. Hyg.*, 1910, vi, p. 430.

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months Philadelphia has seen two entire weeks pass without a single death from typhoid fever. Columbus, Ohio, reports only 209 cases of typhoid and 20 deaths the first year of the filtration plant (1909), as against 1,565 cases and 170 deaths in the year preceding. The use of a settling basin in Richmond, Va., has been followed by a reduction in typhoid mortality, there being only fifteen cases reported in July of this year, as contrasted with eighty-eight in July, 1909. There is still ground for believing that storage and filtration are effective agencies of water purification.

PHARMACOLOGY AND THE CLINIC

Now that clinicians are using drugs more and more on the basis of experimental observation, both clinical and laboratory, it is of interest to read what Professor O. Loewi has to say on the subject in his inaugural address as professor of experimental pharmacology at Graz.¹ Loewi is a pharmacologist of the Schmiedeberg school, which has to its credit on the one hand the clearing up of the tremendous amount of rubbish which had accumulated in the Pharmacopeia, and on the other hand a wise moderation in refusing to follow blindly the bold flights of modern immunology. As he points out, it is in the study of fundamental cell problems, such as the physical properties of the colloids and the chemistry of the cell, by the methods peculiar to itself, that the future of pharmacology as a fundamental science must depend. The subject cannot be of real practical use until it has first established itself on such a basis.

To mention a few brief examples which Loewi uses to illustrate how cooperation between pharmacologist and clinician can lead to practical results: The fact that clinicians sometimes fail to obtain at the bedside results which laboratory observations might lead them to expect has been attributed to the difference in the behavior of drugs in the normal and diseased organism. Both pathology and pharmacology teach that in many instances this difference in reaction of a given organism, when not associated with actual destructive changes, is a mere matter of variation in irritability. The problem of treatment then becomes a matter of dosage. In case of intestinal colic, in which the clinician was inclined to condemn the use of the usual one-milligram (1/60 gr.) dose of atropin on account of the development of toxic symptoms, the dose was reduced to the unusually small amount of one-twentieth of a milligram (1/1200 gr.). Not only were the toxic symptoms eliminated but the desired therapeutic result was obtained. Just as in lead-poisoning the presence of the lead renders the intestine so much more irritable that a dose of atropin, which would have very little demonstrable effect on the normal intestine, can relieve the symptoms, so here, by a pathologic condition the intestine had been rendered so irritable as to react to a minute dose.

The opposite condition, or decreased irritability, also sometimes has to be met. To treat this condition by an increase in dosage is not always wise, unless the clinician has a very definite knowledge of the complications to be expected, a point about which the pharmacologist should be able to give him information. Another means of meeting the difficulty of lack of irritability has lately been receiving more nearly the attention that its importance deserves, namely, the combination of two drugs. To illustrate: The loss of tone of the musculature of the intestine after surgical operations often fails to be relieved by pilocarpin. By the use of physostigmin, which increases the irritability, in combination with pilocarpin, which then stimulates, the desired result can often be obtained.

The treatment of a condition by the careful physiologic analysis of the functional disturbances involved, combined with the application of the drug based on a knowledge of its action, is shown in the following: A case of angina pectoris vasomotoria: heart symptoms, pressure in the chest, a feeling of intense fear appearing on exposure to cold. The physiologic analysis makes the following chain of events likely: Cold causes peripheral vasoconstriction; this leads to increased blood-pressure which exerts a stimulus on the depressor nerve, which in turn stimulates the vagus center and thus leads to the heart symptoms. The whole or part of this chain is probably in a condition of increased irritability, as normally such a result would not be observed. Instead of decreasing the irritability of the factor involved, however, it is necessary only to interrupt the chain by the administration of atropin, which paralyzes the vagus endings in the heart. The patient can now dip his hands into ice-water without any feeling of distress, which, however, comes on again when the effect of the atropin wears off.

The close affiliation of the clinician and the pharmacologist here outlined, besides being of practical use to the former, must of necessity be a great stimulus to the latter, provided he does not permit the urgency of the immediate solution of clinical problems on the basis of insufficient knowledge to influence unduly the direction of his investigations.

FERRO-SILICON POISONING

Improved manufacturing methods involving chemical processes, while they are intended to cheapen output or improve quality, often have effects inimical to health or may even menace life. This fact is illustrated in the case of ferro-silicon. The sudden deaths that have occurred among the crews of vessels laden with this product and illness among workmen in steel works from its fumes have led to an official investigation¹ of the cause. McWilliam² recently has given an account of accidents of this character occurring on vessels, and

1. Loewi, O.: Wien. klin. Wchnschr., 1910, xxiii, 274.

1. Supp. to An. Rep. Local Government Board (British), 1909.
2. McWilliam, A.: Nature, July 14, 1910.

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haps they never were as numerous as we think. In any case, it is well for us occasionally to take time to hold up for honor and emulate the fearless honesty and the devoted unselfishness which distinguished the most worthy representatives of the old school.

Current Comment

COMMON SENSE TREATMENT OF DISTURBANCES OF THE BOWELS

In the Therapeutic Department of this issue is brought out an important matter: the necessity of regulation of the diet to correct disturbances of the bowels. It would be absurd to suggest that physicians are not mindful of this necessity, but it is certainly true that quite often not so much study of individual cases is made as the condition deserves. It is well to remember that a little change in diet may be far more effective than the small doses which it is possible to give of antiseptics, digestants, or correctives. This point was emphasized last week in the Pharmacology Department, in the comment on the futility of giving minute amounts of digestants. It should ever be kept in mind that food may be either a most potent agency for repair or a tremendous handicap.

WHITE PHOSPHORUS IN MATCHES

The United States is practically the only important civilized country which has taken no steps to prevent the use of white phosphorus in the manufacture of matches. That phosphorus poisoning occurs in this industry in the most serious form has long been known; but the fact is again confirmed by a recent investigation of American match factories by the Bureau of Commerce and Labor. THE JOURNAL news correspondence from European cities has frequently called attention to the fact that Europe has long been taking steps to safeguard workmen; there the use of white phosphorus is being restricted so that eventually it will not be used. This country would have been the first to take action on this matter had it involved a commercial proposition; but, since it is a matter that merely affects the health of the workers, it is different.

HEALTH OF WHITE MEN IN THE CANAL ZONE

The construction of the Panama canal is a problem in sanitation first and an engineering problem only secondarily. This THE JOURNAL has repeatedly asserted, as also that the sanitary difficulties have been met in a remarkably successful manner. The engineering work seems to be progressing toward an equally happy conclusion. The success of the canal itself seems, therefore, assured. But there is another fact connected with the building of the canal which is worth calling attention to. Colonel Gorgas in his address before the American Society of Tropical Medicine¹ expressed it as his conviction that the greatest good the canal had

done is that it has given another demonstration of the fact that the white man can live and do the same work in the tropics as he can in the temperate zone. It is shown that health conditions in the Canal Zone among the unacclimated men, women and children from the United States are as good as in any healthy part of the United States; also that the sanitary surroundings of the native and the negro have been so changed that they enjoy the same degree of health as the ordinary inhabitant of the United States. Colonel Gorgas also believes that the criticism that the expense of sanitation in the Isthmus has been excessive is unwarranted. He points out that the work of the Sanitary Department of the Isthmus has been much broader than the ordinary work of a health department, and that it performs the same functions as the whole city government of New York City with the exception of the accounting system, the judiciary and the police. As a matter of fact the medical and hospital care of the employees and their families has cost two and one-half cents per diem per capita, and their sanitation nine mills per day, which he believes to be well within the financial ability of any tropical community. Aside from the great object-lesson presented by the sanitation of the Canal Zone, Colonel Gorgas calls attention to the fact that history shows that great local populations and great wealth have grown up where routes of commerce converge between great divisions of the world. In the case of Panama more routes of travel converge, a greater area of territory is affected, and the concentration of routes is brought into narrower limits than has ever occurred before. He expects in the course of years to see a large and wealthy population grow up in the neighborhood of the canal.

VEGETABLE ACTINOMYCOSIS

Under the title *Die pflanzlichen Actinomycosen*, Peklo¹ has published the results of a comprehensive study of the organisms found in the root tubercles of the alder and sweet gale (*Myrica gale*). As indicated by the heading given to his communication, he has arrived at the conclusion that these micro-organisms are to be considered as belonging to the group actinomycetes. "Clubs" and other characteristic actinomycotic growths were found to be produced by the "bacteroids" under appropriate cultural conditions; and certain chemical substances such as phosphates and potassium and calcium salts appear to favor especially the growth of the root tubercle organisms. Peklo has utilized his observations on the physiology and morphology of these forms as a basis for a fresh study of the human tubercle bacillus. By the use of analogous culture media he succeeded in producing in cultures of the tubercle bacillus structures showing a remarkable morphologic similarity to the growths from the alder nodules. In fact he concludes definitely that the tubercle bacillus is an actinomycete. Interesting and perhaps fundamental analogies in the chemical relations and pathologic activities of these organisms are pointed out. Such observations are well worth attention, although they are perhaps more suggestive than conclusive.

1. Gorgas, W. C.: The Expenses Necessary for Sanitation in the Tropics, Gulf States Jour. Med. and Surg., July, 1910.

1. Centralbl. f. Bakteriöl., ii, 27, 1910, pp. 451-579.

PRESS CENSORSHIP IN AMERICA

Under this heading, the *Christian Advocate* of New York comments on the way in which the brewing interests keep watch of the attitude taken by newspapers and other periodicals. This relationship is so similar to that existing between the patent and proprietary medicine business and lay and medical periodicals, that its comments are easily made to apply to the latter by changing a few of the words. After remarking that a part of the financial embarrassment of the *Boston Herald* is due to the withdrawal of brewers' advertising, because that paper vigorously supported a bill which was antagonistic to the saloon interests and, further, that the *Chicago Tribune* recently lost a large amount of beer advertisements because an editorial on hot weather hygiene recommended abstinence from beer, the *Christian Advocate* continues: "It is loudly denied that there is any concerted action among the brewers ['patent medicine' manufacturers] to control the utterances of the press by dispensing advertising patronage, but it is easy to see how self-interest might prompt such action as that by which the *Herald* and the *Tribune* have been the sufferers. We regret that a newspaper should lose money by standing for a principle, but we cannot but believe that the public is the gainer by the transaction, and that if all the liquor and beer and tobacco advertising [fraudulent patent medicine and quack advertising] were withdrawn, both the newspaper publishers and their subscribers would be the better off, for if money were not wasted on beverages and tobacco [nostrums] it would be available for the purchase of other commodities which in turn would be an advantage to manufacturers, dealers and advertising mediums...Any one who takes the trouble to compare the editorial and news policy of many periodicals with the advertising columns will find grounds for belief that the liquor [proprietary medicine] advertisements strongly influence, if they do not control, the editorial policy."

Medical News

CONNECTICUT

Personal.—Dr. William F. Verdi, surgeon in charge of the St. Raphael Hospital, New Haven, has resigned. Dr. Verdi had the title of chevalier conferred on him by the king of Italy.

Tuberculosis Homes.—The State Home for Tuberculosis Patients at Meriden and the home in Fairfield County at Shelton were opened August 1. The home at Cedar Mountain is also practically ready for opening.

Epileptic Colony.—The commission, appointed by Governor Weeks, under the act of the last general assembly, has purchased the Rock Spring Farm at Mansfield as a site for a state epileptic colony. Dr. Max Mailhouse, New Haven, was a member of the commission.

Show No Mortality.—According to the monthly bulletin of the Connecticut State Board of Health for July, twenty-five towns of the state report having no deaths during the month. The death rate for the state shows 19.3 per 1,000. Infantile paralysis was reported from five towns, there being 18 cases during the month.

Appropriation Asked.—The board of health of New Haven has asked the board of finance for an appropriation of \$400,000 for health purposes for 1911, \$100,000 of which is for collection and reduction of garbage, \$220,000 for a garbage incin-

erator, and \$75,000 for a contagious disease hospital. Last year only \$33,000 was appropriated for the work of the department.

GEORGIA

Uniformed Inspectors.—Inspectors of the board of health of Augusta are to be fully uniformed in a manner similar to the police.

Personal.—Dr. Howard J. Williams has resigned from the medical board of Macon Hospital, to take effect October 1. —Dr. Bernard Wolff has resigned from the board of health of Atlanta, and has been succeeded by Dr. Rufus T. Dorsey. —Dr. T. Neal Kitchen, formerly of Columbus, has resigned as president of the Muskogee County Medical Society and has moved to Warm Springs. Dr. Dexter becomes president of the county society.

To Complete Sanatorium.—The state legislature has made an appropriation of \$50,000, \$30,000 for completing the buildings and equipping the new state sanatorium for tuberculosis, and \$20,000 for maintenance during 1911, as provided for in the bill introduced by Dr. Hardman of Jackson County, and Dr. Brown of Fulton County. —Fulton County Commissioners have appropriated \$10,000 of the county funds to aid in the erection of a tuberculosis sanatorium at Atlanta.

Uncinariasis Common.—According to the newspapers, Drs. S. H. Jacobs and C. H. Dobbs, field inspectors for the Georgia State Board of Health, who have been making a tour of inspection of the state since early in May, found that over 75 per cent. of the people of Georgia who live in the country districts have or have had uncinariasis. To August 1, out of 1,055 persons examined, 672 showed the disease. In Emanuel County, 42 out of 43 inspected had the disease. Many school children have been examined and in every instance ground-itch has been found.

ILLINOIS

Anthrax Among Cattle.—It is said that anthrax has made its appearance among cattle on a farm at Barrington and 16 have died from the disease. It is so far confined to one farm.

Medical Inspection at Macomb.—Drs. Arthur R. Adams, John W. Hermetet, S. Frank Russell and Arthur K. Drake have been appointed by the Board of Education of Macomb to institute medical inspection of the school children. On account of the financial condition of the city, the work will be done by these physicians gratuitously.

Personal.—Dr. Harry W. Ackermann, Rockford, has been appointed first lieutenant of the Third Regiment of the National Guard. —Drs. Malford Hamm, Lay G. Burroughs, and Edgar A. Cook have been appointed township physicians at Edwardsville. —Dr. Julius H. Hess, Chicago, has returned from four months spent among the pediatric clinics of Europe.

Homes for Convalescent Insane.—The Society of Mental Hygiene, recently organized in Chicago, as part of its method of looking after patients who have been in insane hospitals, will endeavor to place patients either recovered or on the way to recovery in homes on farms and elsewhere. This plan has been tried in other states and to some extent in Illinois. The crowded condition of the hospitals for the insane has made this almost a step of necessity. Dr. Vaclav H. Podstata, formerly superintendent of the Elgin State Hospital, has been given charge of this work, and Miss Elnora Thompson, until recently head nurse at the state hospital but now of Hull House, is assisting. The after-care committee will endeavor to extend the work and put it on a more responsible basis.

Chicago

Birth Returns.—The Chicago Woman's Club has called attention to laxity in enforcing the ordinance requiring the reporting of births within thirty days by physicians and midwives, and suggests that the health department should enforce the law in this respect. One of the daily papers commenting on this action says that only vigorous enforcement of the ordinance and application of penalties for neglect to comply, without discrimination, will bring about a needed improvement in Chicago's vital statistics.

An Appreciation of Dr. Ricketts.—The *University of Chicago Magazine* for July contains an obituary of Dr. Howard T. Ricketts and an article in appreciation by Dr. Ludvig Hektoen. Dr. Hektoen says that important results in the battle against infectious diseases will follow the work of Dr. Ricketts, who died of typhus fever in Mexico in May, and he believes that the publication of the typhus researches of

Dr. Ricketts and Mr. Wilder in their final form will settle the moot questions regarding the disease.

Health in Chicago.—The mortality statement for the week shows an improvement over the corresponding period of last year, especially in respect to infant mortality. There were 42 fewer deaths under one year of age and 22 fewer under five years of age. Deaths from diarrheal diseases among children were 53 fewer than during the corresponding week of last year. Ice cream is still being given attention by the health department and the study of typhoid fever under Dr. Lumsden still goes on. During the week ended August 19, 78 cases of typhoid fever were reported as against 40 for the corresponding week of 1909.

Examination of Carbonated Waters.—The *Bulletin of the Chicago Health Department* for the past week gives the results of the examination of 66 samples of carbonated water in the form of seltzer, ginger ale, pop, or sodas of various colors. It was found that 18 of them contained lead; in 3 samples $\frac{1}{4}$ grain per gallon; in 3 samples, $\frac{1}{10}$ grain per gallon; in 8 samples, $\frac{1}{20}$ grain per gallon; and in 4 samples, $\frac{1}{40}$ grain per gallon. Eight factories were found marketing the waters containing lead; six were closed, and the other two ordered to improve their equipment or methods. The pops sold in bottles stoppered with metal stoppers were the objectionable ones. It was found that the stoppers contained from 50 to 90 per cent. of lead. Investigation was undertaken at the suggestion of one of the physicians of the city who, in an investigation, found that numerous cases of illness among children were caused by these carbonated waters.

INDIANA

Hospital at Frankfort.—The new tuberculosis hospital at Frankfort was opened August 9. The hospital consists of an administration building and six cottages for patients, located on a tract of five acres of beautifully wooded land.

Library Destroyed.—The office of Dr. James A. Stafford, Millville, was destroyed by fire recently, burning up his library and complete record of cases of fifty years of practice, which Dr. Stafford had ready for publication in book form.

Deaths and Births in Goshen.—Dr. Albert C. Yoder, secretary of the city board of health, Goshen, reports 8 deaths and 21 births for the month of July. This means an annual death rate of 10.66 to the 1,000 and an annual birth rate of 28 to the 1,000.

Tuberculosis Farm.—Tent houses have been erected on the tuberculosis farm at Evansville, known as the Boehne Farm, in honor of Congressman John W. Boehne, who gave \$10,000 to the farm during the last year. A brick hospital building is being erected.

Advocates State Pasteur Institute.—Dr. William G. Wegner, county health commissioner at South Bend, advocates the establishment of a state Pasteur institute for the prevention of rabies. He favors the addition of 25 cents to the dog tax to create a fund for this institute.

IOWA

Homeopathic Graduates.—Dr. George Royal, dean of the homeopathic department of the State University of Iowa, calls attention to an error in the total number of graduates given for that school in *THE JOURNAL*, Aug. 20, 1910, the Educational Number. The number of graduates reported was eleven instead of seven. This correction increases the number of homeopathic graduates for the entire country to 183 instead of 179.

KENTUCKY

Personal.—Dr. Henry McKenna has been appointed intern in St. Joseph's Hospital, Louisville. —Dr. William V. Neel, health officer at Henderson, has undergone an operation for appendicitis. —Dr. James C. Mitchell, Louisville, has been appointed a member of the State Board of Health.

Tuberculosis Dispensary.—The dispensary organized by the Louisville Antituberculosis Association as the first dispensary of its kind in the city has shown great growth since its organization. There are now 287 persons under its care. During the past month 1,051 visits have been made to patients by Dr. A. M. Forster, who is in charge of the dispensary, and by the staff of four visiting nurses who give all their time to the work.

Enforcing Health Ordinances.—It is reported that Health Officer Edward Grant of Louisville is endeavoring vigorously to enforce the ordinance in regard to reporting notifiable dis-

cases. He recently swore out warrants for five physicians for failure to report cases of typhoid fever under their care. It is said that many cases of typhoid and other contagious diseases have not been reported as required. Dr. Grant has also had the school buildings of the city inspected during the vacation season and many sanitary improvements have been recommended.

State Health Board Appointments.—At the annual meeting of the State Board of Health at Louisville, August 11, the following heads of new offices in the health department, created by the last general assembly, were appointed: Dr. W. Lucien Heizer, New Haven, superintendent of vital statistics; Dr. Lillian H. South, Bowling Green, state bacteriologist; Prof. Frederick Mutchler of Western State Normal School, assistant state chemist; Dr. Paul Hansen, formerly of the Ohio State Board of Health, was elected state sanitary engineer. Dr. Joseph N. McCormack, Bowling Green, secretary of the board, made his annual report in which he stated that there were 129,717 cases of illness in the state during the past year, 6,500 of which were due to tuberculosis. He estimated that the cases of sickness cost an average of \$94 for medical care, drugs and loss of time, placing a total annual tax on the people of the state of over \$12,000,000, nearly double the total annual revenue of the state. The report goes on to say that in order to prevent at least a large portion of this loss, "so far as this generation goes, an appeal to the common sense of the business world gives greatest promise of success. The facts and the losses need to be verified and iterated and reiterated for their significance to be recognized. The employing classes want to live, and in a way want their employees to live. If shown that it would be cheaper to improve sanitary conditions and keep their employees well than to bring in immigrants to die of the same neglect, and that they and their families are likely to sicken and die prematurely from the same causes, it would impress them."

LOUISIANA

Screens in Public Markets.—Dr. William H. Block, acting secretary of the New Orleans Medical Society, has presented to the mayor of New Orleans copies of resolutions adopted by the society, advocating the screening of public and private markets in the city where food is exposed for sale. Dr. William T. O'Reilly of the city board of health, has also reported that he would introduce an ordinance in the council for the same purpose.

The Uncinariasis Commission.—The State Board of Health has authorized the appointment of a medical inspector to be placed at the head of the new department of the State Board of Health for the eradication of the hook-worm. The inspector will receive a salary of \$3,000 a year, of which sum the Rockefeller Hook-Worm Commission, through Mr. Wickliffe Rose, has guaranteed \$2,500 and the traveling expenses of the inspector, as well as the salaries of other assistants.

Antituberculosis Camp.—The Louisiana Antituberculosis League has established a camp at Todd for the treatment of incipient cases of tuberculosis. The second and third stage patients will be cared for by the Charity Hospital with the aid of the legislature, which during the last session appropriated \$10,000 a year for their care at that institution. The camp consists of a hotel which cost \$6,000, and eight cottages each costing \$400. An artesian well has been bored and the water is reported to be of good quality. The camp is said to have an ideal site for the purpose.

Personal.—Dr. D. Harvey Dillon, president of the State Board of Health, and Dr. Edward S. Kelly, secretary, have resigned. —Dr. Edward L. McGehee has been made president of the reorganized State Board of Medical Examiners; Dr. John G. Martin, vice-president, and Dr. Albert B. Brown, secretary-treasurer. —Dr. John B. Elliott, Jr., New Orleans, has been promoted to the chair of theory and practice of medicine to fill the place made vacant by Dr. George Dock. —Dr. C. W. Groetsch, New Orleans, is spending the summer in Canada, where he is making a study of Canadian hospitals.

MARYLAND

Quarantine Established.—Quarantine has been declared at Fort Washington on the Potomac below Washington, on account of the breaking out of scarlet fever in Company 44 of the Coast Artillery there.

Meat Condemned.—Dr. J. McPherson Scott, mayor of Hagerstown, has started a crusade against the selling of unwholesome meat there. One-half of ten carcasses exposed

for sale were condemned as unfit for food by the state live stock inspector.

For a Hospital.—The Board of Trade of Havre-de-Grace has taken up the project of a hospital in that town, and has appointed a committee to investigate hospitals in similar towns. A temporary hospital of 25 beds will meanwhile be provided and subscriptions will be raised and the legislature will be asked for an appropriation; \$3,000 annually is required.

Endowment for University.—A strong appeal is being made for contributions to the endowment fund of the University of Maryland. The institution is now in its one hundred and third year and it is claimed that it is a civic duty of the people of Maryland to give it financial aid. It has not shared in the benefactions of this community as it should and as other similar institutions here have, and such an appeal should meet with generous response from our public-spirited citizens. A considerable sum is already in hand and invested in safe securities. The charter makes the principal inviolable. A large part of this fund belongs to the medical department, including endowments of three scholarships and one chair (physiology). A vigorous campaign will be made on this behalf this fall.

Baltimore

Personal.—Dr. J. M. T. Finney has returned from Europe and is at Chester, Nova Scotia.—Dr. Thomas Shearer is at Ontario, Canada.—Dr. Howard A. Kelly is visiting London and Paris clinics.—Dr. Donna Waldran is in Edinburgh.

Typhoid Fever.—For the week ending August 20, there were 121 cases of typhoid fever reported, with 11 deaths. Eight cases have been reported in Troop A, which camped at Gettysburg in July, and the governor has called on the State Board of Health to make an investigation.

New State Laboratory.—The new laboratory at the State Health Department for the examination of water, milk and ice cream under the pure food law, was ready for work August 22, and the inspectors have entered on their work under Dr. Charles Caspari, Jr., state pure food commissioner.

Medical College News.—The Maryland Medical College announces that the day courses for first and second year students will be continued as usual, in addition to the evening courses recently announced for the same.—The College of Physicians and Surgeons announces that for the next session not more than 75 students will be admitted to either the freshmen or sophomore classes. The addition to Mercy Hospital connected with this college has reached the second floor. It will more than double the size of the hospital.

Discoverer of Saccharin Dies.—The death of Dr. Charles Fahlberg is announced at Bad Nassau, Germany, August 16. It was he who, working here with Remsen and under Remsen's direction and in Remsen's laboratory in 1879, made the discovery of saccharin. Shortly after, he left here and went to Germany, where he patented the product and amassed a fortune out of it. For this discovery Remsen was awarded a medal at the St. Louis Exposition in 1904 by the Society of Chemical Industry of England. Saccharin is a coal-tar product, and when pure possesses about 500 times the sweetening power of cane sugar. It is extensively used in the manufacture of canned goods when pure food laws do not prohibit it.

NEW YORK

Personal.—Drs. Roswell Park and Charles Cary, Buffalo, and A. J. Bedell, Albany, have returned from Europe.—Dr. Harry Weed, Buffalo, and Dr. E. C. Taylor, Dr. and Mrs. W. M. Butler and Dr. Alfred C. DuPont, New York City, have sailed for Europe.

Scarlet Fever and Diphtheria.—The mortality from scarlet fever is becoming alarmingly large. In July, 1909, there were 140 cases of scarlet fever reported, with 9 deaths, or 6.4 per cent., while in 1910 there were 156 cases of scarlet fever reported, with 15 deaths, or a mortality of 9.6 per cent., an increase in mortality of nearly 3.2 per cent. over the same period of last year. It can safely be predicted that with this showing for the summer months with the opening of schools in the fall scarlet fever will continue epidemic, and that the mortality will increase. In July, 1909, there were 24 cases of diphtheria reported, with 1 death, a mortality of 4.1 per cent.; in July, 1910, there were 60 cases of diphtheria reported, with 13 deaths, a mortality of 21.6 per cent.

Buffalo

Tuberculosis Hospital.—Bids were opened August 13 for the building of the county tuberculosis hospital at Brighton,

near Rochester, the lowest being a little more than \$60,000. The work includes an administration building, nurses' home, a number of cottages and a sewage disposal plant.

Preventing Pertussis.—To stamp out the present epidemic of pertussis before the schools open, the Health Department has adopted a method similar to that used in Seattle and Chicago for other diseases, namely, to display between regular pictures at the moving-picture theaters slides prepared by the health department relating to the dangers of pertussis and the means which should be adopted to prevent its spread. Acting Health Commissioner Scahaefer has already placed the moving-picture houses and pleasure steamers under surveillance, so that persons suffering from the disease may be apprehended. Pertussis caused 782 deaths in the State of New York last year.

New York City

A Roof Garden for Babies.—What is believed to be the first regular roof garden for ailing babies has just been opened at the Flower Hospital. This garden has been constructed along the accepted styles for roof gardens even to the music and entertainments. In clear weather the roof garden does duty for the entire twenty-four hours, being used as a dormitory at night. Large returns in the way of improved health among the babies is expected from this innovation.

The Sale of Morphin.—A drug clerk was recently arrested for selling morphin; the purchaser was also arrested. The assistant district attorney refused to have the complaint pressed. The clerk had registered the sale and the note "she has the habit." It seemed, therefore, that there had been no violation of the law. The sale of morphin is legal, it seems, providing it is properly labeled. The Board of Health has power to amend the sanitary code and place the sale of morphin on the same basis as that of cocain.

A Large Foundation.—Mr. John Masterson Burke of New York announced some eight years ago that he would make a foundation in order to endow a home in or near New York for convalescents. At the time of Mr. Burke's death last December, this foundation amounted to \$5,000,000, and personal property has been added to the amount of \$2,000,000. The will was contested by relatives, but the court has decided that it is valid. There is, therefore, about \$7,000,000 with which to begin building, but fear of further litigation will make it advisable to postpone active work for some time.

OHIO

For Cleaner Food.—The City Board of Health of Washington has passed resolutions making stringent regulations for dealers in all classes of food supplies in regard to keeping food clean, and also for the disposal of garbage and taking care of slaughter houses.

Visiting Nurse Provided.—The physicians of Springfield having in charge the free milk dispensary have hired a nurse to visit the families where babies are being treated at the dispensary to see that the suggestions of the physicians are carried out regarding the care of the children and to locate other children requiring dispensary care.

Personal.—Dr. Jane W. Carroll has been elected supreme medical examiner of the Ladies' Catholic Benevolent Association at Cleveland.—Dr. Otis L. Cameron, Cincinnati, has resigned as a member of the board of health. Dr. John D. Miller has been appointed to fill the unexpired term.—Dr. A. Garner, Hillsboro, president of the city council, has become mayor through the resignation of Mayor Puckett.—Dr. Oscar H. Sellings, a member of the Columbus City Board of Health, has been elected to the chair of children's diseases in the Starling-Ohio Medical College.

Tuberculosis.—Toledo has established its first outdoor camp for patients with tuberculosis on a tract of ground comprising several acres, the use of which was given by Judge John F. Kumler. There are about twenty patients in the camp, housed in tents. The work will be extended throughout the winter.—City Health Officer Clemmer of Columbus has asked the local board of education to provide for the building of open-air rooms for tuberculous pupils in all new school buildings to be erected by the board.—The first city tuberculosis dispensary in Cleveland will be located in the Eighth Precinct police station, where four rooms will be fitted up for the purpose. Two of the six city nurses will make the rooms their headquarters and a ward physician will have daily office hours there.

School Inspection.—Dr. Louis F. Bucher, Dayton, who has been appointed by the board of education to begin medical

inspection of school children, has just returned from a six weeks' eastern tour, where he has studied the system employed in various cities, and will inaugurate a systematic plan of keeping records of the inspection of the school children in Dayton.—Medical inspection of the school children will be inaugurated this year at Youngstown, and four nurses have been employed, whose duty it will be to visit the schools daily and inspect sanitary conditions and look after suspicious cases of skin troubles, infectious diseases, etc., among the children. At the beginning of the term, the work will be started by four physicians, who will make a thorough examination of all pupils.

PENNSYLVANIA

Smallpox in State.—Fifteen cases of smallpox have been reported from Honesdale, Herick Center and Tanners Falls. Men from the state health department have been detailed to look after these cases.

Typhoid at Wilkes-Barre.—The typhoid epidemic at Wilkes-Barre has become so serious that action has been taken against the company supplying water to the city for non-compliance with the ordinance requiring filtered water. The water company, it is understood, does not regard the ordinance as valid.

Cresson Sanatorium.—Bids for four of the buildings for the tuberculosis sanatorium to be erected at Cresson Springs on the ground given by Andrew Carnegie were opened at the state health department August 9. The buildings will be of stone procured on the ground. The sanatorium will cost \$250,000, exclusive of equipment.

Bad Conditions Exist at Dixmont.—Dr. Frank Woodbury and Francis J. Torrance, secretary and president, respectively, of the State Board of Charities, denounce the conditions existing at the Dixmont Asylum for the Insane. They found 997 patients in the institution, while the building was erected to accommodate 500. Steps are to be taken to distribute patients to other institutions.

Report of Pure Food Crusade.—During Governor Stuart's administration, from January, 1907, to Aug. 1, 1910, according to the report of the State Dairy and Food Commissioner, 2,093 prosecutions for food adulteration have been brought, of which 861 were under the oleomargin act. The fines collected from these cases totaled \$105,964.84, and 11 men were committed to jail for terms of from 20 days to 6 months each.

Philadelphia

Arrests Reveal Renewed Cocain Traffic.—The cocain traffic, practically wiped out by the recent crusade of the State Pharmaceutical Board, has again been resumed. Two men charged with the illegal sale of the drug in large quantities were arrested, August 19, by an agent of the board and held in \$1,500 bail each for court.

Children's Pavilion for Jewish Sanatorium.—The Philadelphia Jewish Sanatorium for Consumptives has completed plans for a children's pavilion at the farm at Eagleville. In this pavilion children less than 12 years old will be treated free. Of the \$5,000 necessary for the erection of this pavilion, \$1,250 has been donated by a friend of the institution.

Tuberculosis Traced to Cheap Ice Cream.—A dozen cases of dangerous infection have been traced to the confection which is sold by the push cart vendors. Follicular tuberculosis has been traced to this ice cream. An investigation has been started by the State Dairy and Food Commission, and prosecutions will follow as soon as the samples have been analyzed.

Egg Dealer Held for Court.—At a hearing, August 16, of a man charged with selling eggs unfit for food, testimony was given that the defendant had sold eggs which, when fed to guinea-pigs, had killed them. These eggs were examined by Professor LaWall, chemist for the State Dairy and Food Commission, and Dr. Randall C. Rosenberger, of the Jefferson Medical College, and were found to contain 10,000,000 bacteria to the c.c.

Personal.—Dr. James Hendrie Lloyd has been elected visiting neurologist to the Methodist Hospital.—Dr. Herbert Fox, chief of the State Department of Health laboratories at the University of Pennsylvania, was in Lancaster August 18, investigating infantile paralysis.—Dr. Charles Lester Leonard has gone to the International Congress on Radiology

and Electricity in Brussels.—Dr. Edward F. Malone, of the Wistar Institute of Anatomy, has been appointed assistant professor of anatomy in the medical department of the University of Cincinnati, of which Prof. H. M. Knower was recently appointed head.

Bottlers Arraigned.—As a result of the crusade of the State Dairy and Food Commission, a large number of bottlers charged with adulterating soda-water were arraigned August 16. Most of the bottlers entered bail for their appearance in court, which action has led to the belief that saccharin dealers are backing the bottlers and are prepared to finance the fight against the state's charges. The results of the hearings of August 16 were that four men paid fines amounting to \$200 and costs, and nine dealers were held under bail for court. At the hearings August 17, one dealer paid a fine of \$25 and costs and six entered bail for their appearance in court.

City's Milk Supply Inquiry.—Because the large milk dealers have raised the price of milk and insisted that such advance is necessary to insure pure milk, the Bureau of Municipal Research will conduct a thorough investigation of the city's milk supply. This investigation will begin at the source of the supply—the farm—and continue through the handling by shipper and the dealer and its delivery to the consumer. The first bulletin in the inquiry was issued August 18 in the form of a list of fifteen questions to dairymen relating to the conduct of dairy farms and the milking and handling of the product, covering all essential points in the production of clean and sanitary milk.

WEST VIRGINIA

Personal.—Dr. Hugh H. Carr, Fairmont, accompanied by his father, Dr. Lloyd L. Carr, of New York, has just returned from six months' study in the hospitals of Vienna and Berlin.—Dr. Leech K. Cracraft has resigned as city health officer of Elm Grove, and Dr. R. M. Peddicord has been named in his place.

Tuberculosis Sanatorium.—The county commissioners of Ohio County will erect a tuberculosis sanatorium at a cost of \$2,500.—The dispensary of the Antituberculosis League of Wheeling has been opened at 1413 Chapline Street. One of the leading physicians of the city will be in attendance each day. The dispensary now occupies three rooms.

WISCONSIN

Sanitary Drinking Fountains.—The city of Green Bay will abolish the public drinking cup September 1. Sanitary drinking fountains have been erected in the streets and parks of the city.

Personal.—Dr. C. A. Harper, secretary of the State Board of Health and Vital Statistics, is a candidate for the general assembly.—Dr. Frank E. Darling, registrar of vital statistics of the Milwaukee Health Department, has resigned, but has been asked to reconsider his resignation.

Change in Health Department.—The city of Superior, which now employs three physicians to look after the work of the health board, has in view the employment of one man at a sufficient salary to devote his whole time to the work. It is believed that under this plan more efficient work will be done.

Sanitary Homes.—The influence of the crusade of the Antituberculosis Association in this state is seen in the construction of homes. Hundreds of homes built in Wisconsin this year make ample provision for open-air sleeping. Architects and builders have recognized this demand for pure air and plenty of sunlight and have begun designing buildings with this idea in view.

Enlisting the Children in Sanitation.—Health Commissioner William C. Rucker of Milwaukee has introduced the plan of organizing companies of boys and girls of the city to be called the Health Guard, who will be enlisted in the work of keeping the city clean. They will see that back yards and alleys are kept clean and sanitary. The organization will be on a military basis, and daily reports will be made to headquarters, which are to be established in the hall of Lapham Park. Dr. Rucker is to be commander-in-chief of the organization. He will give frequent lectures to the children, instructing them in their work and show disease in its various forms. This follows the plan inaugurated in New York City by Colonel Waring some years ago.

GENERAL NEWS

Intern Wanted for Government Insane Hospital.—The Civil Service Commission will hold examinations October 5, at the usual cities throughout the country, for a medical intern in the Government Hospital for the Insane at Washington, D. C., and for other similar vacancies as they may occur. Positions are held for one year and pay \$50 a month and maintenance. Advancement is possible, with increased pay. This hospital has over 3,000 patients and employees. For several years it has been difficult to secure enough persons to fill these positions, so those who are qualified have a good chance to be successful. Further information may be had from the commission at Washington.

Antirabic Treatment.—Public Health Report of the Hygienic Laboratory of the U. S. P. H. and M.-H. Service for August shows that for the year ended June 30, 1910, 60 patients were treated at the laboratory with antirabic inoculations. Of these, 57 completed the treatment. No deaths were known to have occurred among these patients. Of the 60 patients, 47 were actually bitten or scratched by the teeth of the animal; 10 had scratches or wounds exposed to the saliva, or were exposed during laboratory manipulations. Fifty-five persons were bitten by dogs, 3 were bitten by cats, 1 by a cow, and 1 by a mule. Examinations show that 54 of the exposures were to actual rabies as shown by the laboratory examination. In addition to the inoculations at the laboratory, antirabic treatments were sent out to state boards of health in the form of dried cords preserved in glycerin. This method of transporting the virus a long distance without appreciable loss of potency has been found successful. Nine hundred and fifty-one treatments were thus sent out to state boards in ten different states.

International Medical Association.—The volume of transactions of the fifth annual session of the International Medical Association, Mexico, whose membership is made up, with a few exceptions, of physicians from the United States practicing in Mexico, shows that an interesting meeting was held at Aguas Calientes, January 25 to 27, 1910. About thirty of the seventy-five members of the association were present. Dr. S. H. Hodgson, Tampico, president of the association, presided. Among the foreign physicians present were: Dr. Howard A. Kelly, Baltimore, who read a paper on "Fibroid Tumors," and Dr. John M. T. Finney, also of Baltimore, who took part in the discussions. Dr. Carlos E. Husk, Santa Barbara, was elected president; Dr. R. H. L. Bibb, president-elect for 1911; Dr. F. W. Taube, vice-president; and Dr. J. S. Steele was reelected secretary-treasurer. The transactions contain, in addition to the minutes, papers and discussions, a half-tone picture of the members present at the meeting, some editorial notes, and some poetry. The work of the meeting shows that the Mexican physicians are up to the hour in medical subjects.

Meetings to Be Held in September.—A number of national and state societies are to hold annual meetings next month. Among them are the following:

Amer. Acad. of Ophthalm. and Oto-Laryn., Cincinnati, Sept. 19-21.
Amer. Assn. of Obstetricians and Gynecol., Syracuse, Sept. 20-22.
American Public Health Association, Milwaukee, September 5-9.
Amer. Roentgen Ray Association, Detroit, September 28—October 1.
Kentucky State Medical Association, Lexington, September 28-29.
Medical Society of Missouri Valley, Council Bluffs, Iowa, Sept. 1-2.
Michigan State Medical Society, Bay City, September 28-29.
Mississippi Valley Medical Association, Detroit, September 13-15.
Oregon State Medical Association, Portland, September 7-9.
Wyoming State Medical Society, Casper, September 27.

The fifth annual meeting of the Medical Association of the Southwest will be held at Wichita, Kansas, Oct. 11 and 12. The past meetings of this society have had programs of a high order and as the society has almost nothing of a business nature to come before it the whole session is practically devoted to the consideration of scientific matters. The central location of Wichita, coupled with the fact that the committee promise an unusually good program, should call forth a large attendance of the best men in the district, which comprises Texas, Arkansas, Missouri, Kansas and Oklahoma.

The twenty-third annual meeting of the Medical Society of the Missouri Valley will be held in Council Bluffs, Iowa, September 1 and 2, under the presidency of Dr. A. B. Somers, Omaha. The officers feel that the date is a good one, with prospect of good weather.

FOREIGN

Pellagra in Austria.—The Austrian government has constructed in southern Tyrol six modern steam rye bakeries, which are under the direct supervision of the governor of the province, in order to stop the popular use of infected corn

meal, which is held to be responsible for the pellagra existing in that country. In order to make the rye bread popular with the masses, the authorities have fixed the price at which it shall be sold. The Hungarian government has adopted strict regulations against the sale of corn meal under any other than its own name.

Cholera.—The epidemic of cholera that has prevailed throughout a large portion of Russia seems to be extending in other parts of Europe. A considerable number of cases have been reported from southern Italy, and King Emanuel and Queen Helena are taking a deep interest in the situation. The authorities in Austria and Germany are taking measures to prevent the spread of the disease in their countries, and measures to prevent the introduction of the disease into England have also been the subject of consideration by the British government. The United States government has also given instructions to consular officers at European ports as to the prevention of the embarkation of infected immigrants to this country. During the week ended August 6, 20,468 cases were reported throughout Russia with 8,679 deaths.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 13, 1910

The Increase of Lunacy

As shown in previous letters to THE JOURNAL, the number of insane persons in Great Britain, both absolutely and in proportion to the population, has considerably and steadily increased in recent years—a fact which has given much concern to those interested in public health and has been taken by some to be one of the indications of race degeneracy of which much is now written and so little is proved. There is little reliable foundation for these gloomy forebodings. The greater strain on the nervous system produced by civilized life certainly seems to have produced some increase in insanity. What the real increase amounts to is difficult to say, however, for the alarming statistics which are given have to be discounted by this consideration: The number of insane given is based entirely on the number who have been certified and sent to asylums. With the great modern improvement in asylums people are not so loath to send in their friends as in former times. Therefore many are now admitted who would not have figured in the statistics in former times. The sixty-fourth report of the Commissioners in Lunacy, which has just been issued, shows that the number of certified insane under care in England and Wales on Jan. 1, 1910 was 130,553 or 17,666 more than a year previously. This increase may be contrasted with that of 2,703 for 1908, of 2,096 for 1907, and 2,009 for 1906. The average annual increase for the 10 years ending 1909 was 2,394. Thus the increase for the last year was 628 below the average. A better index of the increase of insanity is obtained by comparing the figures with those of the general population. In the past 50 years the number of certified insane has increased by 255 per cent. while the population has increased by only 83.7 per cent. The proportional figures for more recent years are more satisfactory. The estimated population in 1910 is 12.2 per cent. above that of 1900 and the number of insane 22 per cent. In 1909 there was a marked approximation between the two series, the increase of population being calculated to be 1.16 per cent. and the increase of the insane 1.37. Thus, there is a tendency for the two series to meet and the increase of insanity to cease. A cleaner estimate of the growth of insanity is obtained by taking the ratios which the number of insane bear to the total population. On Jan. 1, 1910 the total number of notified insane was 36.1 per 10,000 of the general population. Ten years earlier the figure was 33.06, so that an increase of 9.2 per cent. had taken place in the 10 years. In the last of these years, however, the increase had fallen to 0.22 per cent. Statistics dealing with the causes of insanity are given in tabular form. Of 50 suggested causes, 12 were considered the principal cause in two-thirds of the cases. In their order of comparative frequency they were as follows: (1) the puerperal state; (2) epilepsy; (3) sudden mental distress; (4) alcoholism (the yearly average of admissions in 1907-08 in which alcoholism was the principal cause, was males, 1,589; females, 709); (5) influenza; (6) prolonged mental distress; (7) senility, which often stands alone as the determining condition of dementia; (8) the climacteric in women; (9) congenital mental defect; (10) insane heredity; (11) injuries; (12) syphilis. These 12 causes are therefore regarded as exercising the greatest influence in the production of insanity but in many cases the causation was complex, several causes combining.

The Revision of the Pharmacopeia

The second report of the Committee of Reference in Pharmacy appointed by the General Medical Council contains several important alterations. The names of three preparations have been altered, namely, liquor iodi fortis, liquor magnesi carbonatis, and hydrargyri oleas, respectively to pigmentum iodid, liquor magnesi bicarbonatis, and hydrargyrum oleinum. For the preparation of linimentum hydrargyri the following formula has been substituted as giving more permanent preparation than the official one: mercury ointment, 5; ammonia solution, 4; camphor liniment, 8. The two last are to be shaken together in a bottle and the ointment then triturated with them. To avoid the well-known and dangerous incompatibility of liquor arsenicalis with solutions of alkaloid salts, especially strychnin, with which it is often prescribed, sometimes with fatal results from precipitation of the strychnin and ingestion of the total quantity in one dose, a new formula has been substituted in which the solution is acid. Extractum nucis vomice is still to be standardized to contain 5 per cent. of strychnin, in spite of the Brussels International agreement by which it should contain 16 per cent. of total alkaloids. The specific gravity of ether is to be 0.720 instead of 0.735. On account of being easier to make and being free from objectionable color, a plaster made with atropin sulphate is to be substituted for emplastrum belladonnæ. Extractum hydrastis liquidum is to be standardized.

Fatal Poisoning From the Use of Phenol as a Dressing

Though phenol (carbolic acid) is extensively used in surgery the cases in which poisoning has resulted from its external use are few. An inquest has been held on a girl aged 2 years who was run over by a van and taken to St. Thomas's Hospital with a wound of the leg. The mother was given a lotion of 1 to 20 phenol and was directed to add an equal part of water to it and use the product as a dressing. When she applied the lotion the child screamed. Two days later the child was admitted with symptoms of phenol poisoning from which she died. At the inquest evidence was given that the child was a subject of the status lymphaticus which caused idiosyncrasy to the carbolic acid. The lymphatic glands were four times the normal size and the spleen twice the normal size. The jury returned a verdict of accidental death and did not blame any one.

Decline in the Sale of Nostrums

It is satisfactory to be able to report a slight decline in the sale of nostrums in spite of the tremendous efforts made by their exploiters to push their sale, by lavish expenditure in advertising. Probably an important cause of the decline is their exposure in the book entitled "Secret Remedies" published by the British Medical Association. As nostrums are subject to a duty by the government their sale can be exactly gauged from year to year. The revenue from the stamp duty on them during the year ending Mar. 31, 1910 was \$12,500 less than in the preceding year and \$110,000 less than in the year before that. Their sale, however, is still enormous, as is shown by the fact that the revenue derived from them in that last financial year amounted to \$1,550,000. As the duty on each article of the value of one shilling (about 25c) or under is three half pence (3 cents) it follows that the total number of articles sold must have been about 50,000,000. Taking into account the fact that a considerable proportion cost much more than a shilling, few less, the annual revenue income derived by their exploiters must amount to over \$12,500,000.

The Dangers of Flannelette

The shocking tragedies by which children are fatally injured due to the inflammable nature of flannelette have from time to time been reported in previous letters to THE JOURNAL. A light comes in contact with a child's flannelette shirt or gown and in an instant the child is enveloped in flame and burned to a horrible and usually fatal extent. By impregnating flannelette with certain salts it can be rendered non-inflammable, but the increased cost resulting prevents the poor from buying this article. An important series of tests on the inflammability of certain textiles has been carried out by the British fire prevention committee, which has also made suggestions for legislation on the subject. The test proposed is that a square yard of the material shall be ten times washed with soap and water and ironed. Being then dry, it is suspended vertically from one edge and a standard flame is applied to the bottom edge for from 15 to 30 seconds. If then not more than one-twentieth of the whole area of the fabric is burnt within 60 seconds the material shall be classed as non-flaming. The committee suggests that material which

cannot be so classed shall have woven or printed on every yard of the selva the words "burns rapidly," or, if sold in the form of garments, the words shall appear twice on the principal band or inner hem; that material or garments sold as non-flaming shall be similarly marked with the words "non-flaming;" that any firm selling "union" (a mixture of wool and cotton) or flannelette contrary to these regulations, or selling as non-flaming material which does not comply with the test, shall be liable to prosecution; that parents and guardians shall be specifically responsible for death or injury by fire to children wearing flannelette or union marked "burns rapidly;" and that local authorities shall issue warnings on the subject. The committee found that ordinary flannelette burned with such rapidity that it was often consumed in 60 seconds and was more inflammable after washing than before. Union also proved very inflammable, especially when washed. Flannel and "non-flam" were alike in that they did not carry flame and only the portion within the power of the flame was affected.

Ferro-Silicon*

Ferro-silicon is an alloy made by heating in an electric furnace steel turnings, quartz and coal. The coal reduces the quartz to silicon which then forms an alloy with the iron. Ferro-silicon is used in the manufacture of a certain kind of steel to which it imparts a high tensile strength when present to the extent of rather less than 1 per cent. Owing to ingredients in the substance used in its manufacture the ferro-silicon of commerce gives out highly poisonous gases. Calcium phosphate, which is present in the coal and quartz is reduced to calcium phosphid; arsenic, which is present in both the coal and iron, appears as calcium arsenid. In contact with water or moist air the former gives off phosphuretted and the latter arseniureted hydrogen, both intensely poisonous gases. Phosphuretted hydrogen is fatal if present in so small quantity as 2.5 volumes per 10,000 of air and arseniureted hydrogen is scarcely less dangerous. It is, therefore, not surprising that under certain conditions, as when carried in the cabins of ships, deaths have resulted. But it is only after repeated sacrifice of life that the fact has attracted attention. Some 40,000 tons are annually imported into England from France. The earliest recorded case of poisoning is that of an explosion of iron drums containing ferro-silicon which were brought to Liverpool. A porter was seriously injured, and investigations led to the conclusion that the explosion was due to phosphuretted hydrogen. In January, 1905, during a voyage from Antwerp to New York 50 steerage passengers who lodged over a hold in which ferro-silicon was stored became seriously ill and 11 died. The deaths were certified as due to pneumonia. An official inquiry attributed them to unknown causes, but later a further inquiry revealed the true cause. Many other fatalities have subsequently been recorded on steamers and on canal boats. An exhaustive investigation into the whole subject has been made by Dr. S. M. Copeman under the direction of the British government. He has made the following recommendations which have been adopted by the local government board: 1. Ferro-silicon should not be sent out from the works immediately after manufacture but after being broken up into pieces, as usually sold, should be stored under cover but exposed to air as freely as possible for at least a month. 2. Manufacturers should be required to mark in bold letters each barrel or other parcel with the name and percentage grade, the name of the works, the date of manufacture and the date of despatch. 3. The carriage of ferro-silicon on vessels carrying passengers should be prohibited. When carried on cargo boats it should, if possible, be carried on deck. If it is stored elsewhere the place should be adequately ventilated and cut off by airtight bulkheads from the crew's quarters. 4. Storage places at docks or works should have provision for free access of and be at a distance from workrooms.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 12, 1910.

First Meeting of the French Pediatric Association

At the suggestion of Dr. Hutinel, clinical professor of children's disease at the Paris college of medicine, the Société de pédiatrie of Paris some months ago took steps toward the organization of a French and an international pediatric association. The international committee in charge of the organization of the latter met in Paris July 23. The Association française de pédiatrie has just held its first meeting in Paris, July 29 and 30, under the presidency of Professor

* See Editorial in this issue.

Hutinel. Two questions of great importance at present were taken up: (1) the thymus, and (2) cerebrospinal meningitis.

PHYSIOLOGY, PATHOLOGY AND SURGERY OF THE THYMUS

The thymus was the subject of three papers, dealing respectively, with the physiologic functions, the pathology and the surgery of the thymus. Dr. E. Weill, clinical professor of children's diseases at the Lyons college of medicine, who presented the first phase of the subject, concludes that, during extra-uterine life at least, the thymus is not comparable to the glands of ordinary secretion such as the thyroid and the adrenals. There is no evidence that there can be hyperthymic syndromes. All that we know concerning the structure and the functions of the thymus indicates that it is comparable to the lymphatic ganglions. Like the latter (and even more actively) it reacts toward infections and intoxications; and, again like the lymphatic ganglions, it is subject to regressive involution with the progress of age; and the precocity of this regression seems to bear a relation to its great sensitiveness. Dr. Marfan, professor of therapeutics at the Paris college of medicine, considered especially the hypertrophy of this gland among quite young infants and the symptoms on which the diagnosis may be based and those which call for thymectomy. When the diagnosis of hypertrophy of the thymus has been established, mercurial treatment should always be tried. If it fails, the treatment employed in all lymphatic hyperplasias (saline baths, arsenic, iodine, calcium) should be used. The administration of epinephrin by mouth (two to four drops a day) may also be tried. When there are serious complications due to compression, it is necessary to use treatment with more rapid action. If the symptoms do not appear too threatening, one may try to diminish the volume of the thymus by radiotherapy; otherwise thymectomy is the treatment of choice. When the dyspnea and cyanosis are so serious as to forbid recourse to this operation, intubation with as long a tube as possible may be tried; but tracheotomy or a short tube should never be used. If the symptoms are thus improved, one may profit by the amelioration to employ thymectomy.

Dr. René Cruchet, *agrégé* professor at the Bordeaux college of medicine, drew deductions from studies of 77 cases with autopsies. He believes that in acute thymic conditions cases of compression of the trachea by hypertrophy of the thymus are exceptional, and that the volume and the weight of the gland play only a contingent rôle, since glands weighing 2 to 3 gm. may provoke attacks while glands weighing 200 gm. may not. Dr. Cruchet believes that compression of nerves is the most probable cause of thymic disturbances. He remarks that often the thymus is hypertrophied only after respiratory troubles such as croup, pulmonary tuberculosis, pneumonia and bronchopneumonia.

The surgery of the thymus was the subject of a paper by Dr. Victor Veau, surgeon of the Paris hospitals, who believes that the functional results of operation are always encouraging. In the crises of suffocation occurring with a large thymus, operation is urgent and may prevent sudden death. In cases of permanent dyspnea without crises of suffocation, removal of the thymus, while less imperative, is still the therapeutic means of choice. In spasm of the glottis, the propriety of operation is more debatable. It may be considered if the physical signs of hypertrophy of the thymus coexist with the spasm. In a case of this kind, observed by Dr. Veau with Professor Hutinel, the result was decidedly favorable. The effects of thymectomy on thymus stridor have not been so encouraging; often the harsh breathing has persisted after the removal of the thymus. Dr. Veau therefore believes that it is not necessary to remove the thymus when strident breathing exists, but the child should be closely watched. If other symptoms of hypertrophy of the thymus, such as crises of suffocation and permanent dyspnea, appear, thymectomy should be performed immediately. One may promise the parents that the removal of the gland will modify the symptoms, but they should be warned that probably the strident breathing will persist.

CEREBROSPINAL MENINGITIS

In a paper on the bacteriology and epidemiology of cerebrospinal meningitis, Dr. Richardière, physician of the Paris hospitals and Dr. J. Lemaire, former intern of the Paris hospitals, emphasize the dangers from bacillus-carriers, particularly persons with more or less accentuated but sometimes latent, contagious, specific rhinopharyngitis due to the diplococcus of Weichselbaum.

Dr. Moussous, clinical professor of children's diseases at the Bordeaux college of medicine, and Dr. Rocaz of Bordeaux

have studied the clinical manifestations of cerebrospinal meningitis of children and the means of diagnosis. The most important elements of the diagnosis are furnished by the examination of the cerebrospinal fluid, withdrawn by lumbar puncture, by the precipito-reaction of Vincent-Bellot and by the fixation reaction of Bordet and Gengou.

Dr. Netter, *agrégé* professor at the Paris college of medicine, emphasizes the efficiency of antimeningococcus serum, which, injected intraspinally, acts as a true specific. As a rule, Dr. Netter injects 30 c.c. of the Flexner serum in very young children. In serious or very obstinate cases, he goes as high as 45 or even 60 c.c. In order to obtain good results, it is necessary to renew the injections during the first three or four days of the treatment. It is best, moreover, to continue them as long as the cerebrospinal fluid contains meningococci. The greatest number of cures, and the most rapid, are obtained when the treatment is begun early. It is therefore better, if there is the least doubt, to inject the serum after the first puncture without awaiting the results of the bacteriologic examination, which, however, ought to be a guide for further injections. Along with the essential therapeutic agent, the serum, other therapeutic means should not be neglected. Netter particularly advises giving warm baths for forty-five minutes at 39 to 40 C. (102 to 104 F.) three times a day. They have a very appreciable action on the stiffening, the pain, and even on the temperature. Repeated lumbar punctures are very useful, for they ameliorate the painful symptoms by diminishing the tension and removing a certain quantity of pathologic agents and other products of disintegration.

Drs. Broca and Debré of Paris emphasized the surgical aspects of cerebrospinal meningitis, especially the severe pains at the beginning which, in the abdomen, simulate appendicitis and, in the limbs, simulate osteomyelitis.

The Next International Congress of Educational Hygiene

The next International Congress of Educational Hygiene will be held in 1913 in Buffalo, N. Y.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug. 4, 1910.

Personal

July 30 Professors Senator and Olshausen, who are resigning on account of advanced age, delivered their farewell lectures. Both addresses were transformed into ovations for the retiring scientists. Especially at the lecture of Senator, Prof. Kraus took the opportunity to emphasize the great importance of the investigator. There is no question that the fame of the Berlin university will be lessened by the departure of these two learned men, for their successors cannot fill their places and give no promise of ever equalling their predecessors. Prof. Franz has been called to succeed Olshausen; he is a former assistant of Bumm.

Professor Rubner has been chosen as rector of the Berlin university for the next student year. This is the seventeenth time that a medical man has been accorded this especially honorable position and among the present force belonging to the university a worthier representative could scarcely have been chosen, for Professor Rubner may well be considered as at present the most important member of the university faculty.

Professor Stock of Freiburg has been appointed director of the eye clinic at Jena in place of Professor Wagenmann.

Professor Payr has been nominated as successor to Professor Krönlein, the well-known director of the surgical clinic in Zurich.

Professor v. Eicken, formerly for many years assistant of Professor Killian, now assistant of Professor Siebenmann in Basel, has been called to succeed Professor Leutert as director of the ear clinic at Giessen.

No Trade Tax on Physicians and Lawyers

In Prussia and in most of the other German states, physicians and lawyers are exempt from tax for carrying on their business on the ground of the provision of the law that professions which are not followed merely for commercial purposes but from ideal interests shall be exempt. In the effort at tax reform which is being made in the deeply involved duchy of Hesse-Nassau the effort is being made by some parties in opposition to the program of the government to remove this special privilege of physicians and attorneys. Fortunately it has been possible for the threatened professions to avert the blow. The Hessian legislature (*Landtag*)

has recently decided that physicians shall be exempt from the trade tax as formerly.

Tuberculin Treatment in Rudolf Virchow Hospital

A separate ward in the Rudolf Virchow hospital has been set apart, the same as last year, by order of the city government, for tuberculin treatment, to be conducted by the institute for infectious diseases under the leadership of its director, Dr. Gaffky. Robert Koch had charge of this work formerly.

Communication of Infection by Eggs

Interesting experiments have been made by the imperial health office to determine the ways in which disease may be conveyed by eggs. The infection of hen's eggs with germs may occur by the contamination of the ready formed egg by germs which are either on the outside of the shell or in some cases may penetrate the shell into the egg itself. Micrococci and non-motile organisms appear not to possess this property of penetrating the shell under ordinary circumstances so long as the egg is kept dry. The principal source of the germs in normal eggs is an infection during their formation; 54 per cent. of the eggs investigated contained germs. The communication of disease by eggs may occur either from the germs on the shell or from those contained in the egg itself. In the transmission of disease by germs, the ability of the germ to resist external influences, such as drying, is of great importance. This method of dissemination of chicken cholera is of minor importance. Paratyphoid bacilli remain viable on egg-shells for 10 days and longer and they may also penetrate the shell into the egg itself. For this reason it is not impossible that, exceptionally, hen's eggs may be the source of a paratyphoid infection of man.

Separation of the Medical Bureau from the Department of Education

The much-discussed question of separating the medical bureau from the department of education on account of the overloading of the latter is finally settled. Next April the bureau will be transferred to the department of the interior. As some important branches of the public-health service are now placed in this department (especially the offices of the sanitary police), it is to be hoped that by the consolidation of the entire medical administration in the department of the interior an effective organization of Prussian sanitation will be secured. The conduct of medical instruction naturally remains with the department of education. The minister of education has also the right to confer the title of professor on practicing physicians on account of scientific attainments, although the medical press has repeatedly and justly protested against this practice.

Operation to Prevent Gangrene of Extremities

Some years ago Professor Wieting of the Güllane Hospital in Constantinople reported two cases in the *Deutsche medizinische Wochenschrift* in which he had succeeded in preventing a threatened gangrene of the extremities in consequence of arteriosclerosis by transplanting the femoral artery into the femoral vein. Professor Bier recently reported a similar success at a meeting of the Freie Vereinigung der Chirurgen Berlins. In a man of 38, with gangrenous ulcers on one foot, due to arteriosclerosis from tobacco, Bier performed Wieting's operation in place of the amputation which the patient desired. The immediate success of the operation was very remarkable. The intense pains disappeared and the limb, which had been in some places pale, in others blue and cold, became red and warm and the ulcers dried up. As the report was made only twelve days after the operation, the permanent results are doubtful. However, according to Bier's opinion it may be hoped that, even if amputation should become necessary, the improved nutrition of the leg would permit a lower amputation. Professor Payr reported a similar case in the Greifswald Medical Society. After transplanting the deep femoral artery into the femoral vein in a man of 70 with arteriosclerotic gangrene of the great toe and heel of one leg, the leg remained better nourished for eleven days, but after that the circulation failed and the patient died from heart failure after a few days. This case was unfavorable on account of the severe infection already present. In discussing the prognosis of such operations in threatened arteriosclerotic gangrene and in general in threatened obstruction to the arterial circulation, Payr recommended to choose the deep femoral, as at its point of origin its lumen is nearly the same as that of the femoral artery, and this leaves the arterial circulation in the femoral intact, while in case the femoral artery is used, thrombosis occurring at the point of

suture cuts off at one stroke the blood supply to the entire limb. Severe infection is a contraindication. Venous thrombi present in the inflamed territory would lodge in the peripheral vessels and cause a complete obstruction of the already imperfect circulation. The return of the arterial blood may be successfully carried on through anastomoses of the deep with the subcutaneous veins. According to anatomical and experimental investigation so far made the valves form no objection to the operation.

New Electric Aid to Hearing

At one of the last sessions of the Berlin Otologic Society Dr. Flatau reported investigations which he had made at the Charité ear clinic with apparatus in which the microtelephonic system is applied. In a certain number of cases, in which all other aids to hearing were unsuccessful, success could still be obtained with this system. But in other cases even this apparatus failed because of the inconstancy of its action and of faulty selection. Flatau therefore had new models constructed in which the tuning of the microphone has been tested for a year and the microphone is installed in a specially arranged and peculiarly constructed sound receiver which possesses various arrangements for regulation. Five types are constructed which differ in the arrangement and size of the acoustic aids in the microphone. In the following discussion it was asserted by all that they had had no favorable results from the microphone apparatus so far in use. Although, as is well known, many people who are hard of hearing can hear well through the telephone, the electric hearing apparatus generally gives no better results than an ear tube. It is generally agreed that a functional examination of the patient must be made before the use of such an apparatus. Further trials of Flatau's instrument will show whether it is more effective than the electric apparatus heretofore in use.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Aug. 8, 1910.

Glanders in the Austrian Army

The Austrian army was expected to hold its annual maneuvers as usual in the month of August, but for some time rumors have been afloat that, owing to some disease in the stables, the actual time of the maneuvers was rather uncertain. Meanwhile a serious outbreak of glanders was conceded by the authorities, and although all the extensive preparations pertaining to the housing and boarding of over 130,000 men and 10,000 horses for three weeks were finished, at the very last moment the maneuvers had to be postponed indefinitely; they will not take place this year. This is due to the action of military medical men, whose influence and opinion in these matters had enough weight to overthrow the optimistic view of purely military persons. The disease had been imported, as could be ascertained by the very close investigation, only seven weeks before, and had at first appeared very insidiously, not having been recognized at once. Only after a few soldiers too had become affected was suspicion aroused, and soon bacteriologic evidence was present.

The course of the disease was mild at first but later all the horses attacked succumbed to the disease, and later on all the affected horses were killed. No less than thirteen regiments are suffering from it, and although official data are not given—all things pertaining to military service are guarded here with secrecy—yet the fact that the maneuvers had to be abandoned, although the emperor himself was to have viewed them, allows one to judge the extent of the epidemic. Up till now, with very few exceptions, no human cases in the present outbreak have been dealt with in the experiment laboratories. Every precaution has been taken to prevent the spread of the epidemic to rural households and farms, and to date no cases have been reported from non-military sources.

Ehrlich's Preparation in Austrian Hospitals

Professor Ehrlich's much spoken of preparation "606" is now in use all over the continent and much comment and perhaps too optimistic expectations are attached to it. The lay press in this country has made very commendable efforts to warn the public of the necessity of waiting further effects of the famous remedy. Just in time a report from the dermatologic clinic in Prague was published, in which it was stated that very unpleasant symptoms (blindness, loss of patellar reflexes, severe pain, etc.), similar to those from acute poisoning with methyl alcohol, have been observed after the injection; though the report was somewhat modified afterward, still it had the beneficial effect of restraining somewhat

the enthusiastic expectation of the multitude of syphilitics. On the other hand many favorable reports have been already published by competent observers in the clinics in Vienna, Budapest, Innsbruck and Graz. As is only natural, all their reports emphasize the necessity of watching the patients thus treated for a prolonged period. But the tendency in this country is in favor of this new remedy. It is estimated that the yearly expenditure of the state for the consequences of syphilis in this country, treatment of acute manifestations in the hospitals, as well as of recurrences, housing of the tabetic, the insane and their offspring is at least \$6,000,000, without counting the loss of national property due to the same source. The interest with which further developments are awaited can thus be readily understood.

Decrease of Meat Consumption.

The report of the superintendent of the general market, who has control also over all the other markets in this country, shows, that in 1909 a marked decrease of the consumption of meat was the leading feature of the meat markets. Thus the average meat consumption per year at Vienna has grown from 64 kilos (130 pounds) for each adult in 1898 to 74 kilos (152 pounds) in 1908; in 1909 the figure was 72 kilos, a decrease of 4 pounds. The growth of meat consumption had been very steady and constant. The sudden drop is explained by the difficulty in obtaining the necessary quantity in the face of the increased expenditure for the other absolutely necessary articles of food, which have become so much dearer. In fact, living having become dearer in this country by 40 per cent., especially since 1908, the effects on public health of the existing conditions have been a matter of serious consideration of the responsible government. The deterioration of the quality and quantity of food consumed by the majority of the population has as yet no marked effect on the vital statistics, but unless it is speedily remedied, serious consequences are sure to follow, for the vegetarian diet is also too dear for the laborer, and abstinence from meat alone is not possible or satisfactory.

Marriages

NORRIS S. McDOWELL, M.D., to Miss Mathilde J. McCrystal, both of Philadelphia, August 6.

MARTIN P. SUMMERS, M.D., to Miss Elizabeth Humphreys, both of Cushing, Iowa, July 29.

S. J. NEWTON MAGWOOD, M.D., to Miss Maude McLain, both of Toronto, Ont., July 23.

HOMER G. ROSENBERGER, M.D., Whittier, Cal., to Miss Fay West of Oskaloosa, Iowa, July 14.

WILLIAM CANTINE GILLEY, M.D., to Miss Margaret Jenkins, both of New York City, August 11.

Deaths

Walter Keeler Scofield, M.D. College of Physicians and Surgeons, New York City, 1868; a member of the American Medical Association; and Association of Military surgeons of the United States; of Stamford, Conn.; medical director with rank of rear admiral, U. S. Navy, retired April 28, 1901 after thirteen years sea service and eighteen years and eleven months shore or other duty; who entered the naval service in July, 1861, as assistant surgeon; was commissioned surgeon, June 19, 1866; was commissioned medical director in 1889; and was retired on October 8, 1901; died at his home in Stamford, August 5, aged 71.

Benjamin Horning Detwiler, M.D. University of Pennsylvania, Department of Medicine, 1855; a member of the American Medical Association; one of the founders of the Williamsport, Pa., Hospital, and a member of the medical and surgical staff from its foundation; a trustee of the Danville State Hospital, and at one time president of the board; died at his home in Williamsport, August 9, from paralysis, aged 78.

Frank Stillman Raymond, M.D. Louisville, (Ky.) Medical College, 1875; a member of the American Medical Association; formerly president of the Shelby County (Tenn.) Board of Health and president of the Memphis Board of Health; mem-

ber of the State Board of Medical Examiners; died at his home in Memphis Tenn., August 16, from Hodgkin's disease, aged 57.

Robert A. Jamieson, M.D. University of Pennsylvania, Department of Medicine, 1866; a member of the American Medical Association; emeritus professor of materia medica and clinical medicine in the Detroit College of Medicine; a member of the medical staff of Harper's, St. Mary's and St. Luke's Hospitals, Detroit; died in that city, August 9, aged 66.

Eric A. Davidson, M.D. Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; Rush Medical College, Chicago, 1901; a member of the Illinois State Medical Society; professor of medicine in Bennett College of Eclectic Medicine and Surgery, Chicago; died at the home of his brother in Berkeley, Cal., July 30, aged 51.

Alexander Thompson Bull, M.D. New York University Medical College, New York City, 1848; a member of the Medical Society of the State of New York; died at his home in Buffalo, August 15, from the effects of injuries received by a fall a few weeks before, aged 83.

Wiley W. Tarter, M.D. College of Physicians and Surgeons, Baltimore, 1908; of Mellen, Wis.; died at St. Joseph's Hospital, Ashland, Wis., August 11, from injuries received by the explosion of a barrel of alcohol at Mellen the day before, aged 27.

Mann Page, M.D. University of Virginia, Department of Medicine, 1897; house surgeon and physician to Orange Memorial Hospital, Orange, N. J., died suddenly at his home in Keswick, near Cobham, Va., July 29, from dysentery, aged 40.

Eugene T. Wilhelm, M.D. Jefferson Medical College, Philadelphia, 1878; a member of the Medical Society of the State of Pennsylvania; and Lehigh Valley Medical Association; died at South Bethlehem, June 24, from diabetes, aged 61.

David William Rees, M.D. California Eclectic Medical College, Los Angeles, 1890; for many years a druggist and physician of Needles, Cal.; died at the California Hospital in Los Angeles, July 31, from septicemia, aged 41.

Seymour J. Holley, M.D. College of Physicians and Surgeons, New York City, 1857; a veteran of the Civil war; for twelve years an inspector on the Brooklyn Board of Health; died at the Brooklyn Hospital, August 7, aged 73.

James W. Nance, M.D. Baltimore University School of Medicine, 1894; a member of the Medical Association of the State of Alabama; died suddenly at his home in Russellville, August 5, from heart disease, aged about 55.

George Charles McIntyre, M.D. University of Toronto, Faculty of Medicine, Toronto, Ont., 1906; of St. Mary's, Ont.; died at the Royal Victoria Hospital, Montreal, Que., March 6, from tuberculous spondylitis, aged 28.

William J. Foley, M.D. Louisville (Ky.) Medical College, 1897; a member of the Kentucky State Medical Association; health officer of Fayette county; died at Lexington, August 7, from paralysis, aged 36.

William Henry Hull, M.D. Harvard Medical School, Boston, 1865; a member of the Massachusetts Medical Society; a veteran of the Civil War; of Holbrook, Mass.; died at Essex, Mass., August 8, aged 78.

Edmund Livingstone Moodie, M.D. Hahnemann Medical College, 1903; a member of the American Medical Association; of Chatham, Ohio, died at Harper Hospital, Detroit, July 8, from sepsis, aged 35.

Oliver J. Mayne, M.D. Denver (Colo.) College of Medicine, 1890; a member of the American Medical Association; formerly mayor of Como, Colo.; died at St. Luke's Hospital, Denver, August 9, aged 47.

Francis Emory Ross, M.D. College of Physicians and Surgeons, New York City, 1870; a member of the Missouri State Medical Association; died at his home in Springfield, August 8, aged 72.

George Herbert Huntington Redding, M.D. Bellevue Hospital Medical College, New York City, 1887; died at his home in San Francisco, Cal., August 8, from cirrhosis of the liver, aged 52.

Samuel B. Bailey, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1859; a retired practitioner of Higganum, Conn., died at his home in that place, August 11, aged 84.

Samuel H. Griffin, M.D. Missouri Medical College, St. Louis, 1880; a member of the American Medical Association; died at Humansville, Mo., April 7, from pneumonia, aged 61.

William Francis Lynch, M.D. Cooper Medical College, San Francisco, 1882; a member of the Medical Society of the State of California; died at Hayward, Cal., July 1, aged 55.

Samuel B. Littlepage, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1885; a retired practitioner of California; died at a hospital in Oakland, August 11, aged 72.

Levi Spencer Wilcox, M.D. Long Island College Hospital, Brooklyn, N. Y., 1873; twice mayor of Champaign, Ill.; died at the California Hospital, Los Angeles, August 5, aged 63.

James Robert Crockett, M.D. University of Maryland, School of Medicine, 1891; of Burkes Garden, Va.; died at the University Hospital, Baltimore, August 2, aged 54.

John Wesley Klein, M.D. Hahnemann Medical College, Philadelphia, 1871; died suddenly at his home in Louisville, Ky., August 13, from cerebral hemorrhage, aged 59.

Martin Luther Fittro, M.D. University of Maryland, School of Medicine, 1896; died at his home in New Martinsville, W. Va., August 12, from uremia, aged 45.

James H. Scarborough, M.D. Medical Department of the University of Nashville, Tenn., 1872; died at his home in Tharpe, Tenn., August 9, aged 72.

Thomas R. Young, M.D. Jefferson Medical College, Philadelphia, 1859; died at his home in Ashland, Ky., August 2, from senile debility, aged 77.

William C. Baylor, M.D. Washington University School of Medicine, Baltimore, 1869; died at Willow, Cal., June 27, from cerebral hemorrhage, aged 67.

Mark C. Ott, M.D. University of Alabama Medical Department, 1900; died at his home in Greensboro, Ala., July 2, from tuberculosis, aged 34.

Alexander G. Carroll, M.D. Georgia College of Eclectic Medicine and Surgery, 1894; died at his home in Atlanta, Ga., August 7, aged 53.

Randolph S. Steensen, M.D. University of the South, Medical Department, Seawanee, Tenn., 1900; died at Harrisburg, S. D., August 9, aged 38.

William Ross, M.D. Eclectic Medical Institute, Cincinnati, Ohio, 1845; died at Wilton Junction, Iowa, August 1, from heart disease, aged 82.

Charles E. Fay, M.D. Detroit Medical College, 1877; died at his home in Kalamazoo, Mich., August 3, from disease of the liver, aged 56.

Henry T. McNatt, (license, Ark., 1903); formerly of Buena Vista, Ark.; died at his home in Stephens, Ark., August 9, aged 37.

George Alfred Rogers, M.D. St. Louis Medical College —; died at White Lake, S. D., April 18, from nephritis, aged 60.

Henry G. Groff, M.D. Philadelphia Medical College, 1853; died at Harleysville, Pa., July 28, from uremia, aged 80.

J. N. Houston, (License, Tenn., 1889); died at his home near Parsons, Tenn., August 6, aged 84.

Good Pamphlets on Tuberculosis.—Public Health Bulletins 35 and 36 are authoritative monographs on the subject of the nature, prevention and climatic treatment of tuberculosis, which will be serviceable for the information of the physician himself or to place in the hands of patients. They are written by Passed Assistant Surgeon F. C. Smith, of the U. S. Public Health and Marine-Hospital Service. Bulletin 35 gives in plain language the ascertained facts regarding the nature, contagious character, mode of spread and practicable means of prevention of the disease. Useful hints and advice to patients are appended. The information in this pamphlet will not be new to physicians but is given in an excellent form for the instruction of the general public. The second pamphlet is more especially designed for the guidance of the physician in selecting a suitable climate and in deciding whether climatic change is desirable. The opinion of a number of experts is quoted and the different circumstances affecting the decision of the medical adviser are carefully pointed out, it being especially emphasized that the decision must be made with reference to the special circumstance of the individual case. A list is given of the most healthful and suitable places in the different states as shown by the location of state sanatoria, also a list of places characterized by high altitude and dryness and a list of places at more moderate or low altitudes which are suitable for climatic treatment.

Correspondence

Patenting Instruments and Apparatus

To the Editor: A word by way of protest against the patenting of newly devised surgical instruments and apparatus by physicians. It has long been held that any improvement in the armamentarium of the physician should be given to the profession for the benefit of the sick and afflicted. For a physician to patent a method of laboratory technic or apparatus whose purpose is to aid in the diagnosis or prevention of disease is no worse from an ethical standpoint than the patenting of a surgical instrument.

The argument that the physician should profit in this way from his ingenuity and knowledge is fallacious. Otherwise the most laudable efforts of present-day medicine, the prevention of disease, should have no legitimate place in the physician's work.

A most glaring example of this evil has been the recent exploitation of a set of instruments for perforating the skull, which have been patented. They have been widely advertised under the name of the inventor, a doctor, both by the medical press and by circular letter. The claim made for them that it is impossible to injure the underlying dura or brain is not true, as I have demonstrated to my satisfaction. The price, \$50, is four or five times their intrinsic value. For \$2.40 I have obtained a set of perforating instruments at a local hardware store which answer every purpose—and they are just as safe.

JOHN D. SINGLEY, Pittsburg, Pa.

Registration of Foreign Physicians

To the Editor:—Having read the letters of Drs. Hoenes and McReynolds in THE JOURNAL on this subject, I beg leave to make a few remarks. By way of criticism I will add that there was an air of sentiment about them that interested me. If candidates for license to practice medicine in Canada will comply with the various provincial laws, they will have no difficulty. Of course, if one has, up to a few years ago, carried the hod and later, by way of recreation, obtained a degree or license to practice medicine either by serving apprenticeship for a year as office boy to some poorly trained practitioner, or attending one, two, or even three, five or six-month courses at some diploma mill, one will be blocked at the start. I am surrounded by physicians who have spent, at most, two six-month terms at college, hardly enough time to digest a part of one of the primary subjects of medicine. Did these latter, in the obscurity of the barnyard, obtain a knowledge of anatomy (comparative or human) or did they get their knowledge by inspiration? I have met them at different state board examinations, and later heard of their having passed successfully; all I can say is that they would not have been qualified to take a professional examination in Canada. In conclusion, permit me to say that if a physician has the qualifications which are exacted of all nationalities in Canada, he can obtain the license to practice there.

D. NATHAN, Norristown, Pa.

Doctors of Public Health

To the Editor:—Apropos of the editorial in THE JOURNAL, August 20 on this subject, may I not ask your attention to the course which since 1906 has been offered by the University of Pennsylvania, and which is outlined in the special advertisement of this school in the same number of THE JOURNAL? Dr. Harold Wood, who graduated this spring in this course, has very recently been placed in charge of the Mississippi State Laboratory by the Board of Health of Mississippi.

ALLEN J. SMITH, Dean.

Miscellany

The Mesocelic Recess in Man and its Relation to Reissner's Fiber.—Reissner's fiber, a small bundle commencing in numerous fibrils from the ependymal groove of the lower vertebrates and passing downward or backward through the iter, the fourth ventricle and the central canal of the cord to its posterior extremity, has been traced as a constant structure in the vertebrates from the lamprey up to the monkey. Its function has been supposed to be nervous, but this has not been demonstrated; and Horsley has found that it does not degenerate like a nerve with electrolytic lesions. Dendy has recently (*Nature*, Dec. 23, 1909) suggested that it has a mechanical function in regulating flexure of the body. It seems to be highly elastic and normally under considerable tension during life, as it is found retracted and twisted up after section of the cord. In a recent communication to the Royal Society (June 2, reported in *Nature*, June 9), Professor Dendy and G. E. Nichols report the finding of a rudimentary structure in the human brain corresponding to the ependymal groove, or as they prefer to call it, the subcommissural organ, from which this fiber starts. In the human fetus it consists of two bands of highly columnar epithelium with deeply situated nuclei, invaginated posteriorly into the roof of the iter to form a "mesocelic recess" as in certain lower vertebrates. In the adult brain this is represented by a small cavity lined with characteristic columnar epithelium imbedded in the roof of the iter at the back of the posterior commissure, and in close relation to another cavity, apparently representing a communication with the lumen of the iter. In the fetus this communication is widely open. It is not probable, they say, that any trace of Reissner's fiber will be found in the human adult, as with the loss of the tail and assumption of the erect position, the function it is assumed by them it would have, of automatic regulation of the flexure of the body, is no longer needed, and is represented only by the vestigial remnant of the subcommissural organ.

Paraffinomas.—This term has been coined by Delangre to describe the inflammatory lesions and tumefaction liable to develop around a deposit of paraffin injected into the subcutaneous cellular tissue. The "beauty specialists" have taken up this method of improving the appearance of their customers and serious results have sometimes followed. In one such case presented at a recent meeting of the Paris Dermatologic Society, Thibierge presented a young woman who had been given by a local beauty specialist a number of injections of hard paraffin to remedy a very slight depression in the nose. The immediate results were so satisfactory that she had her face all gone over in this way, 80 injections being made in the course of 21 months. A year later the various deposits became the seat of disfiguring swelling, the aspect suggesting pronounced leontiasis. There is no pain except from the stretching of the skin. Operative removal of the paraffin seems to be the only resource in this case, electrolysis, heat and massage offering little prospect of success with the hard paraffin. Gaucher reported a case in which the paraffinomas had developed in the breast of a young woman and they were followed by cancer. Pautrier also reported 4 cases of paraffinomas in the face, the work of a "beauty specialist;" in one case the lesions ulcerated. He found that each deposit of paraffin was walled in with connective tissue. Balzer called attention to the frequent development of subcutaneous fibromas in the tuberculous after injection of paraffin with a low melting point. Injection of paraffin into a cavity, to replace a testicle, for instance, seems harmless, but the anatomic conditions in the subcutaneous tissue are very different and the results are liable to be deplorable.

Concussion of the Brain.—E. Schwarz discusses a number of cases of trauma causing concussion of the brain, his article appearing in the *St. Petersburg med. Wchnschr.*; 1910, xxxv, 267. His experience shows that an apparently slight accident may induce a focal injury of the brain which yet causes no symptoms and the patient feels no ill effects. The focal lesion may be revealed, however, by blood in the cerebrospinal fluid or a serous effusion may follow if the focus does not heal soon,

the cerebrospinal fluid then showing increased pressure or other changes. Lymphocytosis may reveal the changes resulting from the focal lesion. With rest, healing is soon complete, but the necessity for rest from the first should be emphasized even though the patient may feel entirely well. Without rest the pathologic condition may persist and the clinical picture of meningitis be presented in time. The euphoria may be pronounced after lumbar puncture; the latter is especially valuable in these cases. The euphoria is in marked contrast to the condition in cases of traumatic neuroses.

Idiosyncrasies.—R. M. Beauchant concludes an article on this subject in the *Progrès Médical*, April 16, 1910, with the statement that the different idiosyncrasies should be considered as having a common etiology and clinical kinship. Certain families are especially subject to them, although they may appear in various forms in the same person and in the same family. They are generally associated with symptoms which should be regarded as of the same pathogenic importance; these include urticaria, acute edema of the skin or mucosa, asthma, all of which generally accompany the idiosyncrasies; with, more rarely, stenosis, migraine, eczema, pruritus, dysmenorrhea and certain forms of chronic rheumatism and, invariably, with an extreme tendency to nervousness. He thinks that a common soil is evident in all these manifestations, a tendency to instability on the part of the vasomotor apparatus, an angioneurotic diathesis, and that certain features indicate a thyroid origin for the various disturbances noticed with this diathesis.

Congenital Scoliosis.—A case of congenital scoliosis is reported by Frederick Langmead, (*Proc. Roy. Med. Soc.*, May, 1910), in an infant aged 10 months, who was brought to the hospital for "projection of the back." There was a pronounced spinal curvature with the convexity to the left, most severe in the dorsolumbar region. In the upper dorsal and lower cervical region was a compensating curve in the opposite direction. The curvature was irreducible. Rickets could be excluded. A skiagram revealed an extra bone between the last dorsal and first lumbar vertebra, wedge-shaped; with the base of the wedge to the left. The bone bore two transverse processes at its base and one at its apex, and thus apparently represented a vertebra and a half. That the twelfth dorsal vertebra was not included in this bone is shown by the fact that twelve ribs could be counted on each side, the lowest of which joined the vertebra above. There were five lumbar vertebrae plainly visible below.

The Diagnosis of Cholera in the Philippines.—Erroneous diagnoses have been responsible for the failure to destroy foci of cholera infection in the city of Manila, according to Victor G. Heiser, Director of Health (*Quarterly Report of the Bureau of Health, Fourth Quarter, 1909*). In the last quarter of 1908, 129 cases of meningitis were reported to the health authorities. In order to verify the diagnosis in a number of these cases autopsies were made, and these showed that the cause of death was cholera and not meningitis. In view of this, it was decided to hold autopsies in all cases reported as meningitis. This had the effect of increasing the diagnostic acumen of those signing death certificates and in the subsequent quarter only 34 cases of meningitis were reported. Twenty-eight of these were autopsied, and only 2 proved to be meningitis; 17 were cholera; 4 were beri-beri; 1 was empyema and 4 were undetermined. In the last quarter of 1909 there were 151 deaths from cholera in Manila. The total death-rate in Manila for 1909 was 35.50 per 1,000, as against 47.62 per 1,000 in 1908.

Carcinoma in Early Life.—Howard T. Karsner (*Proc. Path. Soc., Philadelphia*, February, 1910) reports a series of ten cases of carcinoma, seven occurring, respectively, at the ages of 7, 10, 11, 14, 19, 21 and 22, and three at the age of 23. Five were in males and five in females. The duration of all the cases had been short, confirming the opinion of other observers that cancer runs a much more rapid course in childhood and early life than in adult life. From Karsner's experience and from a study of the literature in early life the sexes seem to show equal predisposition to cancer, the intestine and skin being especially subject to cancer in boys, and the ovaries in girls.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

RESTRICTION OF USE OF RED CROSS—SUBSTITUTES THEREFOR

To the Editor:—Can you give me information about the restriction of the use of the red cross? Would the green cross be a proper insignium to be put on physician's automobiles in order to secure from the police exemption from the speed ordinance in emergency cases? LOUIS F. ROSS, Richmond, Ind.

ANSWER:—The Geneva Convention in 1864, and later in 1906, adopted an international agreement providing that the "emblem of a red cross on a white ground and the words 'Red Cross,' or 'Geneva Cross' should be adopted by all nations participating in the convention as a special designation in times of peace or war to protect or to designate sanitary formations and establishments, the personnel and material protected by the convention." The American National Red Cross, which comes under the regulations of the International Geneva Treaty, was granted a charter by Congress, Jan. 5, 1905, authorizing it to act in behalf of the United States in matters of relief under the treaty. The executive committee of the American National Red Cross then requested all hospitals, health departments and like institutions to refrain from the use of the red cross in order to avoid confusion and suggested as a substitute some other insignia such as a green St. Andrew's cross on a white ground. Congress at its last session restricted the use of the red cross to the American National Red Cross. This law, of course, only prohibited organizations from adopting this emblem after the passage of the law. Although the American Medical Association has used this badge for many years and does not come under the provisions of the law, it was felt by many that the use of the Geneva red cross should be restricted to the American National Red Cross. Consequently, at the Atlantic City Session in 1909 a committee was appointed to submit designs for new insignia. The report of this committee was presented at St. Louis (See THE JOURNAL, June 18, 1910, pages 2068 and 2081). The green St. Andrew's cross on a white ground would be a proper badge for physicians' automobiles, hospital ambulances, etc., and could be adopted by agreement with authorities.

The Public Service

Medical Department, U. S. Army

Changes for the week ended August 20, 1910.

Casaday, George H., dent. surg., August 9, granted leave of absence for twenty days, to take effect about August 10, 1910.
Cole, Clarence L., capt., August 8, designated for duty with troops from Whipple Barracks, Arizona, Camp Atascadero, California.

Rutherford, H. H., major, August 13, ordered to Fort Totten, N. Y., for duty.

Ford, Joseph B.; Van Dusen, James W., majors, August 13, report en route to Camp of Instruction at Fort Riley, Kansas.

Fletcher, John P., lieutenant, August 13, left Fort D. A. Russell, Wyoming, for duty at Camp E. S. Otis, Wyoming.

Holmberg, Carl E., lieutenant; Kremers, Edward D., lieutenant; Hathaway, Levy M., capt.; King, Charles T., lieutenant, August 10, ordered to Camp of Instruction at Atascadero, California, for duty.

Nelson, Kent, capt., Aug. 15, 1910, on arrival at San Francisco will proceed to Whipple Barracks, Arizona, for duty.

Carpenter, Alden, dent. surg., August 15, returned to West Point, N. Y., from leave of absence.

Farrow, Edgar J., M. R. C., August 15, now at Vancouver Barracks, Washington, having completed the duty assigned him, will proceed to Fort Morgan, Alabama, for duty at that post.

Leslie, Samuel H., dent. surg., August 15, ordered to proceed from his home, Monticello, Kansas, to Fort Leavenworth, Kansas, for duty at that post.

Yemans, Herbert W., M. R. C., August 15, having reported in this city in compliance with orders heretofore issued, is designated as the representative of the War Department at the International Esperanto Congress.

Shaw, Henry A., major, August 15, relieved from duty at Fort Slocum, N. Y., September 1, and will proceed to Boston, for duty as attending surgeon. Major Shaw is relieved from duty at Boston, and will proceed at the proper time to San Francisco, and take transport to sail from that place about Dec. 5, 1910, for duty in the Philippines Division.

Jenkins, F. E., M. R. C., and Fuller, Major Leigh A., August 13, report arrival at Camp of Instruction, Fort Riley, Kansas.

Keller, William L., capt., August 14, left West Point, N. Y., on detached service, accompanying the First Class, Corps of Cadets, to Fort Hancock, N. Y.

Bell, Leonard P., M. R. C., August 16, reports for duty at Camp of Instruction, Fort Riley, Kansas.

Cullem, Charles W., M. R. C., August 16, granted leave of absence for two months, to take effect upon his arrival in the United States.

Brechemin, Louis, col., August 16, granted leave of absence for four months, with permission to go beyond the sea.

Church, James R., major, August 16, granted leave of absence for one month, to take effect upon his relief from duty at Fort Robinson, Nebraska.

Nichols, Henry J., capt., August 16, on arrival at New York City, will proceed to Peoria, Illinois, for the purpose of studying pellagra in connection with the commission organized by the governor of Illinois.

Brechemin, Louis, Jr., capt., August 16, leave of absence extended one month.

Le Wald, Leon T., capt., August 17, leave of absence extended one month.

Medical Corps, U. S. Navy

Changes for the week ended Aug. 13, 1910.

Lumsden, G. P., medical inspector, detached from the recruiting station, Chattanooga, Tenn., and directed to wait orders.

Tolfree, H. M., passed asst.-surgeon, detached from the naval recruiting station, Cleveland, Ohio, and ordered to the naval recruiting station, Chattanooga, Tenn.

Orders issued by Commander-in-Chief of Asiatic Fleet:

Ames, M. H., passed asst.-surgeon, ordered to duty at the naval hospital, Olongapo, P. I.

Higgins, S. L., passed asst.-surgeon, detached from Mohican and ordered to the *Nie Yark*.

Dollard, H. L., asst.-surgeon, detached from the *Relief* and ordered to the *Charleston*.

Guest, M. S., surgeon, ordered to the navy yard, Pensacola, Fla., when discharged from treatment at the naval hospital, Las Animas, Colo.

Fitts, H. B., medical inspector, detached from the navy yard, Pensacola, Fla., and ordered to Washington, D. C., for examination for retirement.

Tolfree, H. M., surgeon, commissioned surgeon from March 24, 1910.

Allen, A. H., passed asst.-surgeon, detached from duty with the naval rifle team of 1910 and ordered to duty at the naval hospital, navy yard, New York, N. Y.

Higgins, S. L., passed asst.-surgeon, commissioned passed assistant surgeon from November 12, 1909.

State Boards of Registration

COMING EXAMINATIONS

IOWA: Capitol Building, Des Moines, September 12-14. Sec., Dr. Guilford H. Sumner, State House.

MASSACHUSETTS: State House, Boston, September 13-15. Sec., Dr. Edwin B. Harvey.

MISSOURI: Capitol Building, Jefferson City, September 20-22. Sec., Dr. Frank B. Miller.

NEW YORK: Albany, September 27-30. Chief of Examinations Division, Dr. Charles F. Wheelock.

Arkansas Homeopathic May Report

Dr. P. C. Williams, secretary of the Arkansas Homeopathic Board of Examiners, reports the written examination held at Texarkana, May 18, 1910. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The 8 candidates all passed.

College	PASSED	Year Grad.	Per Cent.
Kansas City Hahnemann Medical College.....	(1910)		
77.5, 79, 79, 80, 80.5, 81.....			83, 83

Arizona July Report

Dr. Ancil Martin, secretary of the Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, July 5-6, 1910. The number of subjects examined in was 9; total number of question asked, 90; percentage required to pass, 75. The total number of candidates examined was 11 of whom 6 passed and 5 failed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
University of Alabama	(1910)		78.3
University of Southern California	(1910)		80.5
Georgetown University	(1906)		78.4
Northwestern University Medical School.....	(1907)		81.1
St. Louis University	(1909)		87.5
Memphis Hospital Medical College	(1901)		79.2
FAILED			
College of Physicians and Surgeons, Chicago...	(1904)		70.3
Hospital College of Medicine, Louisville.....	(1897)		66.5, 70.9
Medical College of South Carolina	(1910)		67.8, 67.9

Colorado July Report

Dr. S. D. Van Meter, secretary of the Colorado State Board of Medical Examiners, reports the written and oral examination held at Denver, July 5, 1910. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. Twenty-five candidates were examined of whom 21 passed and 4 failed. Twenty-seven candidates were registered on presentation of satisfactory credentials, including state licenses. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Denver and Gross College of Medicine	(1906) 77.7; (1910) 79.7, 80.5, 81.3, 83, 83.3, 84.7, 88.7		
University of Colorado	(1909) 81.5, 81.7; (1910) 79.6, 83.4, 83.4, 83.6, 83.8		
Bennett Medical College, Chicago	(1910)		82.4
Rush Medical College	(1898) 79.4; (1909)		76.7
Hering Medical College, Chicago	(1910)		77.9
Harvard Medical School	(1910)	86.2,	86.7
FAILED			
University of Louisville	(1905)		68
St. Louis College of Physicians and Surgeons	(1906)		63.2
Ensforth Medical College	(1908)		53.7
Barnes Medical College	(1906)		65

REGISTERED ON CREDENTIALS

College.	Year Grad.	State Licenses.
Georgetown University	(1908)	Pennsylvania
Bennett Medical College	(1898)	Texas
American Medical Missionary College	(1909)	Michigan
College of Physicians and Surgeons, Chicago	(1899)	Illinois
Jenner Medical College	(1907)	Iowa
Rush Medical College	(1888)	Iowa
University of Iowa, College of Medicine	(1907)	Nebraska
University of Iowa, Homeopathic College	(1896)	Iowa
University of Kansas	(1906)	Kansas
Maryland Medical College	(1905)	West Virginia
St. Louis Medical College	(1867)	Missouri
Washington University, St. Louis	(1904)	Illinois
Northwestern Medical College, St. Joseph	(1892)	Missouri
St. Louis University	(1908)	Missouri
University of Buffalo	(1898)	(1907) New York
Columbia University, College of Physicians and Surgeons	(1895)	New York
New York University Medical College	(1897)	Pennsylvania
Eclectic Medical Institute, Cincinnati	(1873)	Pennsylvania
University of Pennsylvania	(1892)	Pennsylvania
Western Pennsylvania Medical College	(1888) (1896)	(1901) Pennsylvania
Medico-Chirurgical College, Philadelphia	(1892)	Pennsylvania
University of Toronto, Ontario	(1892)	California
Queen's University, Canada	(1898)	Minnesota
University of Vienna, Austria	(1894)	Montana

Connecticut July Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written examination held at New Haven, July 12-13, 1910. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 35 of whom 27 passed and 8 failed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Yale Medical School	(1908) 84.7; (1910) 80, 81.1, 82.4, 84.3		84.3
Georgetown University	(1908)		81.4
Baltimore Medical College	(1910)	76, 79.4, 81.2,	78.9, 81.2
College of Physicians and Surgeons, Baltimore	(1910)		76.9, 78.7
Johns Hopkins University	(1908)		83.9
Tufts College Medical School	(1909) 80.4; (1910)		81.7
Harvard Medical School	(1910)		78.6
College of Physicians and Surgeons, Boston	(1905) 83; (1910)		78.2
Columbia University, College of Physicians and Surgeons	(1903)		82.8
University and Bellevue Hospital Medical College	(1909)		75.8
Long Island College Hospital	(1908)		79.4
University of North Carolina	(1908)		82
Jefferson Medical College	(1908) 83.1; (1910)		81.2
University of Vermont	(1897) 75.7; (1910)		
FAILED			
College of Physicians and Surgeons, Chicago	(1899)		68.5
College of Physicians and Surgeons, Baltimore	(1903)		61.5
College of Physicians and Surgeons, Boston	(1910)		60.1
Maryland Medical College	(1910)	68.8,	74
Baltimore Medical College	(1909)	71.6,	74.2
University of Vermont	(1899)		57.7

Connecticut Homeopathic July Report

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, July 12-13, 1910. The num-

ber of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 5, of whom 3 passed and 2 were conditioned. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Atlantic Medical College, Baltimore	(1909)		78.5
Hahnemann Medical College and Hospital, Philadelphia	(1910)	80.8,	94.1
FAILED			
Boston University	(1905)		*78
Hahnemann Medical College and Hospital, Philadelphia	(1910)		*76

* Conditioned in one or two branches.

Book Notices

INTRODUCTION TO THE ANALYSIS OF DRUGS AND MEDICINES. An Elementary Handbook for the Beginner. By Burt E. Nelson, Chemist to the New York State Hospitals. First Edition. Cloth. Price, \$3 net. Pp. 384, with 31 illustrations. New York: John Wiley & Sons, 1910.

In view of the extremely diversified nature of the substances entering into the composition of medicines, the separation and determination of the several ingredients of a medicinal preparation is often a matter of great difficulty and is occasionally impossible. Since a glimpse into nearly every phase of chemical activity is necessary in order to cope successfully with all of the problems met with in drug analysis, a comprehensive work devoted to the subject is a much-sought desideratum. Because of the magnitude of the task no one has hitherto attempted the preparation of such a treatise, but the "Introduction to the Analysis of Drugs and Medicines" apparently is a step in this direction, although this work, as the title implies, is little more than an outline of the subject. At the outset of the book the term "drug" is limited by definition to "a dried plant part in the crude state." In the early chapters attention is called to the apparatus and operations used in the ultimate analysis of inorganic and organic substances and the outlines of the principal methods used in elementary qualitative and quantitative analysis are given. A chapter is devoted to the determination of molecular weights, common radicles and chemical formulæ. The general principles of drug analysis, by means of which the proximate principles of drugs may be separated and identified, are given in some detail. While not so comprehensive as the section devoted to microscopic drug analysis (in which field the author is more at home) this is in some respects the most valuable portion of the book.

The analytical scheme outlined is an eclectic adaptation of the earlier schemes described by Dragendorff, Parsons and other writers. While it is clear, concise and usable, its chief value is in calling the attention of the beginner to the principal factors to be kept in mind and the results to be expected in drug analysis, leaving the details to be obtained from the teacher or from specialized works of reference. Brief sections are devoted to the assays of chemicals, crude drugs and pharmaceutical preparations and a short chapter is allotted to pharmacologic methods. Many valuable tables are given in the appendix. As no diagnostic methods are given, the book can have no place in the curriculum of the medical school nor in the working library of the physician. It should prove useful in those schools giving elementary courses in drug analysis, and particularly in those in which but little time can be given to foundation courses in analytic chemistry.

THE PRODUCTION AND HANDLING OF CLEAN MILK. Including Practical Milk Inspection. By Kenelm Winslow, M.D., M.D.V., B.A.S. (Harv.), Chairman of the Committee on Milk of the Washington State Medical Association. And Essentials of Milk Bacteriology. By H. W. Hill, M.D., Minnesota State Board of Health Laboratories. Cloth. Price, \$3.25. Pp. 367, with 101 illustrations. New York: W. R. Jenkins Co., 1910.

An attempt is made in this book to treat the bacteriology, chemistry, physiology of milk, also the practical points of caring for cows, construction of stables, handling of milk, milk transportation, and the inspection of milk and dairies. In addition, the bacteriologic examination is discussed, with a chapter devoted to the identification of bacteria usually found

in milk and the preparation for culture media. Finally a series of laboratory experiments is outlined for the practice of students, by Prof. H. W. Conn. All these subjects cover a rather large field and could be treated more successfully in single books each devoted to one subject specially. If the author had confined himself to the practical parts of milk production and the handling of milk the value of the book would have been enhanced.

The first chapter deals with germs in their general relation to milk. Aside from the fact that many misstatements, contradictions, inaccuracies and some typographic errors have crept in, it must be confessed that the composition is not always clear and leaves doubt in the mind of the reader of the position actually taken by the author. For instance, after discussion of pasteurization, parts of which are useless repetitions, it remains problematic whether the author is in favor of pasteurization or not. To mention some of the inaccuracies: It is stated that bacteria multiply by spores. This is difficult to conceive in view of the fact that a bacterium, as far as we know, never produces more than one spore. The discussion on the germicidal action of fresh milk is premature, since investigators are by no means agreed on the subject. The same comment applies also to the presence of "natural ferments" in milk.

Chapters 2 to 8 are devoted to practical questions of the production, handling and transportation of milk; also the care of cows, the food and the construction of stables. These chapters are of great merit, although occasionally not quite clear and consistent, and they might have constituted the most profitable nucleus for a book of this nature. The chapter on the housing and care of cows is perhaps the most valuable in the book. Milk inspection is discussed in Chapter 9. The presentation of this subject is fair and complete on the whole.

Chapters 10 and 13, on the bacteriology of milk, are written by Dr. H. W. Hill. Justice to this large subject cannot be expected in a limited space, but the information given is fair and clear, although somewhat from a one-sided point of view. Chapter 14 contains instructions for laboratory work. As stated before, this belongs properly in a special work and really has no place in this book.

In the appendix we find illustrations of modern sanitary cow-stables. Unfortunately, the most approved modern swinging stanchion is omitted, and the statements in regard to milking machines are rather premature.

ESTÉRO-COLITE: ESTOMAC ET SYSTÈME NERVEUX. Par le docteur L. Pron, Membre adhérent de la Société de médecine de Paris. Paper. Price, 2 francs. Pp. 132. Paris: Jules Roussel, 1, Rue Casimir-Delavigne, 1910.

The author sustains the proposition that the condition commonly known as membranous colitis or colitis mucosa is closely connected with nervous dyspepsia and with enteroptosis. He regards the intestinal condition as directly dependent on the failure of the stomach to perform its functions, and therefore directs his therapeutic measures to the cure of the fundamental affection. He attributes the influence of the stomach in producing the pathologic condition of the intestine to the irritation of the solar plexus which is set up by abnormal gastric conditions, is transmitted to the intestinal plexus, and thus causes the intestinal symptoms. The chapter on therapeutics includes a consideration of the dietetic and physical measures suitable to the cure of the dyspepsia as well as to the medicinal treatment. The importance of psychotherapy is recognized. The treatment appears to be in accordance with the methods usually followed in the treatment of these affections. The emphasis which the author puts on the connection of intestinal symptoms with a gastric disorder which is sometimes unrecognized is suggestive and gives to the book its *raison d'être*.

ARBEITEN AUS DEM PHARMAZEUTISCHEN INSTITUT DER UNIVERSITÄT BERLIN. Von H. Thoms, M.D., Professor und Direktor des Pharmazeutischen Institutes der Universität Berlin. Volume VII. Comprising work of 1909. Paper. Price, 7 marks. Pp. 312, with illustrations. Vienna: Urban & Schwarzenberg, 1910.

The present volume follows much the same lines as the previous ones. We note with regret the statement in the preface that Dr. Zernik has left the service of the institute. He is succeeded in these investigations by Dr. E. Richter.

Much of the report is taken up with the investigation of some comparatively rare plants, especially some of the essential oils. A large section is given to the investigation of foodstuffs from the German colonies. Notwithstanding the great importance of the investigations reported, it is to be regretted that so much of the material is of no immediate practical value to the physician.

DIE PRAXIS DER HYDROTHERAPIE UND VERWANDTER HEILMETHODEN. Ein Lehrbuch für Aerzte und Studierende. Von Dr. A. Laqueur, leitendem Arzt der hydrotherapeutischen Anstalt und des mediko-mechanischen Institutes am städtischen Rudolf-Virchow-Krankenhaus zu Berlin. Price, 8 marks. Paper. Pp. 288, with 57 illustrations. Berlin: Julius Springer, 1910.

This book reflects the present teaching of hydrotherapy in Germany and Austria, where the practice of this important branch of therapeutics has reached a high degree. The first chapter takes up the physiologic action of hydrotherapy and thermotherapy and includes a good description of the "reaction." Other chapters deal with the influence on the blood, the secretions, the nervous system and the musculature. This is followed by section on the general technic and the application of hydrotherapeutic measures in various diseases. Electric baths, including the "four-cell bath" and electric light treatment, are well illustrated.

Medicolegal

Skill and Care Required of Specialists, Particularly Hernia Specialists—Liability for Bad Results—New and Unaccepted Methods of Treatment—Paraffin Treatment of Hernia

The St. Louis Court of Appeals says, in the malpractice case of McClarin vs. Grenzfelder (126 S. W. R., 817), that, as treatment for hernia, the defendant, on January 6, injected into the plaintiff's right groin over the hernia some aseptic paraffin. The theory of the practice was that this paraffin, after it was injected into the middle of the muscle outside the abdominal cavity and the peritoneum, would form into a compact mass over the hernia, and close, and hold closed, the orifice in the peritoneum so the bowel could no longer protrude, or possibly hold the bowel in place until the orifice had contracted enough to prevent protrusion. But, notwithstanding the plaintiff was pronounced cured, he said that he suffered pain from that time until May 7, when he was taken to a hospital, found to be suffering from peritonitis, and was immediately operated on therefor.

Taken in its entirety, the testimony of the one expert introduced by the plaintiff pointed rather weakly to the conclusion that the paraffin in the abdominal cavity caused the peritonitis. Doubt, however, was cast on this theory by the paraffin not being in contact with the peritoneum, and the complete cure of the peritonitis before the paraffin was removed. Moreover, the injection of it, if a regular and approved method of treating the ailment, would not necessarily lay the defendant liable, even if it induced the peritonitis, for untoward results sometimes follow the most scientific surgery. On the whole, more evidence on the main issues of fact was desirable; but, as there was proof that the peritonitis might have been caused by the wax, and some evidence tending to prove the injection of it was not a right way to treat hernia, the court indorses the submission of the case to the jury, which returned a verdict in the plaintiff's favor for \$2,000 damages. At the same time, the judgment is reversed, and the cause remanded for another trial, on account of erroneous instructions given the jury.

The theory carried through the instructions was that the defendant was only required to possess and exercise the skill and care exercised by physicians of ordinary skill and ability in localities like St. Louis, whereas this court thinks he was bound to exercise the care of a specialist, and that the propriety of his treatment was to be determined with reference to the practice and approval of specialists. It might be that the system was recognized, approved, and used by physicians who had kept pace with scientific progress in

relieving hernia, but "was a method or manner of treatment not used by physicians and surgeons of ordinary care and skill," as the instruction read.

Because the defendant held himself out as an expert in the treatment of hernia, the law required him to treat the plaintiff with the skill and care commonly shown by physicians and surgeons in St. Louis and cities in advance or abreast of it in the practice of medicine and surgery, who devote special study to the treatment of the disease; that is to say, the proficiency and skill of hernia specialists, not meaning by this designation only physicians who treat that disease exclusively, but also those who by special study and experience probably have acquired more accurate knowledge of the right methods of treatment than is possessed by general practitioners of medicine. And in ascertaining whether the requisite skill and care were employed in a given case, contemporary knowledge of the ailment and how to relieve it are considered.

If expert practitioners of the defendant's school concurred in opinion about the right method of treating hernia, and the defendant adopted a method not recognized as sound, then, according to courts which have passed on the question, his conduct should be regarded as an experiment which rendered him liable if it injured the plaintiff in the way alleged; that is, caused peritonitis. But if the defendant's system of treatment was recognized as proper, then, though there were other systems recognized as proper, he could not be convicted of negligence if he made use of the one he deemed most suitable for the plaintiff's case. In such a condition of medical science the question of the defendant's responsibility would turn on whether he administered the remedy preferred by him with the degree of care and skill required of a person holding himself out as an expert.

What the court is dubious about is whether the evidence for the defendant conduced to prove the treatment he used was recognized by experts of his school (the allopathic or regular school) as proper for the relief of hernia. That it was of comparatively recent origin ought not, by that fact alone, to put it in the class of innovating experiments, so as to lay the defendant liable for a bad result, even though he displayed reasonable skill and care in the manner of applying it. This is true because some of the most approved systems of treatment, like antitoxin for diphtheria, met with general acceptance by the medical profession a few years after their discovery.

Importance to Public Health of Pure Milk and Validity of Law Fixing Standard

The Supreme Judicial Court of Massachusetts says, in *Commonwealth vs. Wheeler* (91 N. E. R., 415), that milk is a very important article of food, which enters largely into the sustenance and development of children. It is the natural food of infants for a considerable time after their birth, and the milk of the cow is often used to supply the deficiency of milk from the mother. Probably there is no other article of diet the purity and good quality of which are so important to the life and health of the people, and especially to the life and health of the young children, as are the purity and good quality of milk. It is also very easy to adulterate it, and it may be adulterated, especially by the addition of water, in such a way that nothing but a chemical analysis will detect the adulteration.

The legislature, in the interest of public health, has enacted laws intended to enable the people to obtain milk of good quality, that is free from adulteration. No one can question the propriety of legislation on this subject. If statutes are directed to this end, the methods adopted for accomplishing the object desired, so long as they have some manifest relation to the object, must be left to legislative determination. Not only in Massachusetts, but in several other states, the establishment of a standard founded on the quantity of milk solids and of fat contained in the milk has been adopted as the best way of preventing adulteration, and of securing for purchasers milk whose quality can be relied on. It is a familiar exercise of the police power for the prevention of fraud and promotion of the public health.

That the defendants did not know that the milk they had for sale contained less than the prescribed quantity of milk solids, or but 11.65 per cent. when 12.15 per cent. of milk solids were required by the statute, was immaterial. It has often been decided that, in the public interest, the burden of ascertaining at his peril, whether an article that he sells is within the prohibition of a criminal statute, may be put on the seller.

The defendants offered evidence that the milk in their possession was not deleterious or injurious to health, but was nutritious and beneficial as an article of food. This, if proved, would not have shown that the law requiring milk sold or for sale to contain at least 12.15 per cent. of milk solids and not less than 3.35 per cent. of fat was invalid. The fact that a certain kind of milk is not injurious to health, and that it is somewhat nutritious and beneficial, as an article of food, if used discreetly, with full knowledge of its qualities and deficiencies, is not enough to deprive the legislature of its power to forbid the sale of it, if it would be likely to be used to commit frauds on purchasers who might buy and use it, relying on its supposed possession of a larger proportion of nutritious qualities, and if such use of it would be likely greatly to injure the public health, and particularly the health of young children. The legislature might believe that the authorized sale of such milk would open so wide a door to the commission of frauds on the community, and would be so injurious in its consequences, that such sales should be prohibited.

The offer to prove that the milk was without adulteration, and just as it came from properly fed cows in sound health, was governed by the same considerations.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

August 4

- 1 Laboratory Work of the Danvers State Hospital, Hathorne, Mass., with Special Reference to the Policy Formulated by Dr. Charles Page, Superintendent, 1888-1898, 1903-1910. E. E. Southard, Boston.
- 2 *Margin of Error in the Diagnosis of Mental Disease. E. E. Southard, Boston.
- 3 *The Dementia Præcox Group in the Light of Certain Cases Showing Anomalies or Scleroses in Particular Brain Region. E. E. Southard, Boston.
- 4 *Ten Obscure Cases of Mental Disease. L. T. Alford, Hathorne, Mass.
- 5 Study of the Senile Spinal Cord. A. S. Hamilton, Minneapolis.
- 6 *Histologic Study of the Thyroid Gland in Mental Disease: Especially Chronic Thyroiditis. A. H. Peabody, Hathorne, Mass.
- 7 *Incidence of Heart Diseases in Acute Psychoses. A. A. Horner, Hathorne.
- 8 *Bacterial Invasion of the Blood and the Cerebrospinal Fluid by Way of the Mesenteric Lymph Nodes. E. E. Southard and M. M. Canavan, Hathorne, Mass.
- 9 Bacillary Dysentery at the Danvers State Hospital. M. M. Canavan, Hathorne.
- 10 Persistence of Agglutinins of *B. Dysenteriae*. M. M. Canavan, Hathorne.
- 11 Organisms Recovered from Dysentery Cases. M. M. Canavan, Hathorne, Mass.
- 12 Mannite and Non-Mannite Fermenting Organisms in Dysentery, Complicated by Hemorrhagic Endometritis. M. M. Canavan, Hathorne.
- 13 Primary Adrenal Tuberculosis in Juvenile General Paresis with Meningeal Infection (*B. Coli Communis*). E. T. F. Richards, Hathorne.
- 14 *Autochthonous Sinus Thrombosis. F. R. Sims, Hathorne, Mass.
- 15 *Diagnosis of Fractured Skull Aided by the Finding of Brain Tissue in the Vomitus. G. T. Brown, Hathorne, Mass.
- 16 Brain and Other Visceral Weights in 66 Subjects Showing Carcinoma and Sarcoma. N. E. Burns, Hathorne, Mass.
- 17 Effects of Over-Feeding with Fats in Certain Cases of Insanity. H. M. Adler, Hathorne, Mass.

August 11

- 18 Clinical Aspects of Arteriosclerosis. H. Jackson, Boston.
- 19 Diagnosis of Infantile Paralysis in the Prodromal and Early Acute Stage as Found in the Experimental Study of Acute Poliomyelitis in Monkeys. E. P. Lucas, Boston.
- 20 Milk Pasteurization in Boston. M. J. Rosenau, Boston.
- 21 The Condition Dominated External and Internal Atony; Its Association with Tuberculosis. A. M. Forbes, Montreal.

2. Mental Disease.—The majority of the real diagnostic difficulties uncovered by Southard's analysis would appear

to require more intensive work in the field of clinical pathology. For such work in psychopathic hospitals this paper is an appeal.

3. *Dementia Præcox*.—The topographic study of dementia præcox brains, both gross and microscopic, is commended as likely to shed new light on the pathogenesis of certain symptoms, notably paranoid and katatonic symptoms.

4. *Mental Disease*.—In these 10 cases the diagnoses made from the morphologic findings were changed in 2 cases after comparison with the clinical histories. One was due to the fact that the psychosis, a delirium, resulted from a functional stomach disorder that could not be recognized post-mortem; the other was a case in which the brain of a patient with dementia præcox had undergone certain senile changes. Of the clinical diagnoses, on comparing with the morphologic, one was corrected, and 2 left unclassified were in a measure cleared up. Counting the unclassified as errors, there were 3 errors in the clinical diagnoses of these 10 cases. Of these, one was due to the poor histories and inability to communicate with the patient; one was probably due to the fact that the patient died the same day that he was admitted; and one error was made because enough importance was not assigned to the disturbance of bodily functions as a causative factor in mental disease. Errors are liable to occur, then, in both the morphologic and clinical diagnoses of a case, but when the 2 are compared it is believed that fairly accurate conclusions may be reached.

6. *Thyroid Gland in Mental Disease*.—Fifty patients were examined. Excluding a case of exophthalmic goiter and one of acromegaly, about 77 per cent. of the Danvers' series show changes. A possible relation between the thyroid gland and the process of emaciation is seen in the fact that 64 per cent. of the subjects with "normal" thyroids (11) had become emaciated under hospital or other conditions, whereas none of the individuals with chronic thyroiditis (12) showed emaciation. Again, only 13 per cent. of the subjects showing follicular or interstitial excess of colloid had become emaciated, so that the question arises whether such histologic "excess" means excess or means defect in thyroid constituents in the body at large.

Though the pulse had not been intensively studied clinically in these cases, certain data are available. None of the "normal" thyroids had been associated with pulse-rates over 100 (75 per cent. under 90). Only 1 of 7 cases of marked chronic thyroiditis yielded a pulse over 90 (but that one over 120). The exophthalmic goiter patient naturally had a high pulse; the acromegaly patient a low one. The hyperplastic and excess-colloid cases, as well as those of slight chronic thyroiditis, are variously distributed with respect to pulse. Five descriptions of thyroid glands in dementia præcox are added; 3 of these yielded both microscopic and macroscopic alterations (one enlarged, 2 small), which may or may not signify important alterations in the amount of thyroid products reaching the circulation. Two cases of briefer duration showed neither microscopic nor macroscopic alterations.

7. *Heart Disease in Acute Psychosis*.—This study of the incidence of heart lesions in acute psychoses is based on the protocols of cases autopsied over a period of 30 years. The protocols are unselected, and are those of such autopsied cases as possessed clinical histories permitting the diagnosis of manic-depressive insanity or dementia præcox. This study showed that the percentage of hearts probably normal functionally is higher in manic-depressive insanity than in dementia præcox; dilatation of heart occurs more frequently in manic-depressive insanity than in dementia præcox. Leaving out dilatation of the heart, the incidence of every cardiac lesion in dementia præcox is greater than the incidence of the corresponding lesion in manic-depressive insanity. The incidence of individual heart lesions is relatively greater in the acute psychoses than in all psychoses combined, except that the relative frequency of hypertrophied hearts in manic-depressive insanity is below the average. This study suggests the desirability of a close clinical study of hearts, pulse and blood tension in the group of acute psychoses.

8. *Bacterial Invasion of Blood and Cerebrospinal Fluid*.—The material was unselected, save (1) that cases without

readily palpable nodes were not examined; and (2) that 30 of the 50 cases gave macroscopic signs of intestinal disease of greater or less severity (15 from an epidemic of bacillary dysentery). There were no detectable differences in the proportion of bacteria growth at different intervals post-mortem. Positive cultivations were obtained in (a) cerebrospinal fluid, 85 per cent.; (b) blood, 80 per cent., and (c) node, 78 per cent. Growths from all 3 regions were obtained in 55 per cent. Growths from 2 out of 3 regions were most frequently obtained in cerebrospinal fluid and lymph node (17 per cent.). The incidence of various organisms was as follows: Cocci in the blood, 20 cases; in the cerebrospinal fluid, 22; and in the lymph node, 16; *staphylococcus aureus* in these sources, 5, 6 and 3 cases, respectively; streptococci, 2, 1 and 0 cases; bacilli in 1, 8 and 10 cases in the respective source. The findings seem consistent with the hypothesis that in the terminal exhaustions of the insane bacterial invasions are almost the rule.

14. *Autocathorosis Sinus Thrombosis*.—Sims presents a study of a case of extensive sinus thrombosis of the cerebral sinuses. It is of interest because of the extent of the thrombosis and the slowness of its development; also because of the probable origin in a focus of sclerotic vessels in one of the lateral sinuses. A rugged, healthy man of 49, with history of frequent severe headaches for a year, had an attack of sudden onset with violent headache and vomiting lasting over 12 hours. Periods of somnolence, aphasia and increasing weakness of the right side followed, with temperature chiefly subnormal. Later hallucinations, delirium, hemiplegia, deepening stupor and coma appeared, with death at the end of 6 weeks. The case was clinically doubtful. The most likely diagnoses made in life were brain tumor, apoplexy and meningitis. The true diagnosis of sinus thrombosis was not seriously thought of by any of the physicians dealing with the case in life. The symptom most characteristic of sinus thrombosis was missing, i. e., congestion of the veins of the cranium and face.

15. *Fractured Skull*.—This case illustrates a curiosity in the diagnosis of skull fracture, based on the finding of brain material in the gastric contents. A car conductor sustained a fracture of the skull from collision with a telegraph post while on the running board of his car. Two hours after the accident, the patient showed an obvious depressed fracture of the right frontal bone, and while on the accident table began to vomit bloody fluid. The vomiting was extensive (1 to 6 oz.) and lasted 8 hours. At the third or fourth attack of vomiting, a bit of material was observed on the blanket which macroscopically suggested fresh brain tissue. This suggestion was later microscopically confirmed. The patient died 65 hours after the accident. He spoke no words while in the hospital, but was restless, spontaneously arising from bed, was without paralysis and would resist attempts at examination (such as gagging of mouth or lifting of eyelids) by incoordinate movements of arms and legs. On gagging he uttered long, loud, ah-sounds. Later he groaned, habitually breathed through the mouth and a few hours before death became cyanotic. There was no systematic examination of reflexes. The knee-jerks were neither markedly decreased nor increased. The pupils were moderately and equally dilated.

Medical Record, New York

August 13

- 22 *The Value of Surgical Procedures in the Solution of the Problem of Race Betterment. J. E. Mears, Philadelphia.
- 23 Tetanus and Its Treatment. C. D. Fox, Philadelphia.
- 24 Electric Sleep in Paths of Displacement Currents: New Findings. L. G. Robinovitch, New York.
- 25 Important Events in the Development of Gastroenterology. J. Friedenwald, Baltimore.
- 26 Why the Exceptional Child is Entitled to Receive Training Suited to Its Needs at Public Expense. M. Neustaetter, New York.
- 27 Alcoholic Gastritis and Its Relation to Experimental Gastritis in Animals. N. B. Foster, New York.
- 28 Primary Streptococcus Diphtheria. D. H. Orgel, New York.
- 29 *Aerotherapy. J. G. Sauer, New York.

22. *The Problem of Race Betterment*.—Mears believes that we should endeavor to secure, not only sterilization, but also removal of the sexual desire. He advocates for this purpose

the operation of ligation of the spermatic cord, which sterilizes and removes sexual power and desire after a period of a few months. The operation of resection of the vas deferens sterilizes, but leaves sexual desire, and this both injures the defective individual and causes him to continue in his bad practices.

29. **Aerotherapy.**—Sauer proposes that we shall sleep in beds that are so arranged that the head projects out of the window in all weathers. This induces good sleep and good health. To secure this he removes the legs of the head of the bed to the middle of the side frames, so that the head may be pushed out of the window, and the window shut on to the lower portion of the body, the upper part projecting out of the window; it should be well protected by a hood and warm bedding in winter.

New York Medical Journal

August 13

- 30 Resection of the Elbow in Children. C. G. Cumston, Boston.
- 31 Visual Fields in Accessory Sinus Disease. S. M. MacWhinnie, Seattle, Wash.
- 32 *Uterine Fibromyoma Complicating Pregnancy. R. S. Hill, Montgomery, Ala.
- 33 Acute Inversion of the Uterus. J. A. McGlinn, Philadelphia.
- 34 *Singultus Gastricus Nervosus. A. Bassler, New York.
- 35 Clinical Significance of Depression. G. E. Price, Philadelphia.
- 36 Tropical Diseases Observed in the Region of San Francisco Bay. C. Wellman, Oakland, Cal.
- 37 *Innocently Acquired Syphilis. W. B. Brouner, New York.

32. Abstracted in THE JOURNAL, May 28, 1910, p. 1817.

34. **Singultus Gastricus Nervosus.**—As a condition, Bassler says, this is rarely encountered (seen by him in only two cases of several thousand neurotic stomach conditions), and most probably usually in well-nourished young adults and most often in the female. The close study of these two cases in the way of heredity, past history, cause, imitation, syphilis, hemorrhages, infectious diseases, chemical toxic causes (lead, alcohol, tobacco), and the usual symptoms of hysteria were not present, and both of them had a *bona fide* gastric hyperesthesia accompanying them. The most careful examination in both failed to elicit any skin anesthesia, hyperesthesia, or paresthesia, had pain, emotional crises, were mentally excitable or depressed or had loss of emotional control, were impulsive, had spinal or vertical pains, globus hystericus, vasomotor disturbances, disturbed sleep, somnambulism, or cerebral automatism, paralysis, contractures, tremor, ataxic or choreic movements, absence of skin reflexes, complete loss of concentric limitation of the visual field or disturbance of color sense, manifested the presence of hysterogenic zones, pseudoangina, amyosthenia, constipation, and other of the less common clinical symptoms observed in the more or less irregular course of hysteria. Both the patients were exhaustively examined by competent specialists, among whom were neurologists, ophthalmologists, gynecologists, and others, and both were considered as normal in all other respects, and Bassler therefore believes that such a neurotic condition of the stomach does occur, the cause of which is primarily situated in that organ, and that this gives rise to involuntary contractions of the diaphragm as a reflex manifestation.

37. **Syphilis of the Innocent.**—A number of cases are cited by Brouner in support of his contention that syphilis, one of the most contagious infections afflicting mankind, is undoubtedly on the increase as judged by hospital and private practice, and that many estimable, respectable people acquire this disease innocently, and for a long time are unaware of the real nature of their illness. These innocent victims innocently infect others, and the most frequent source of infection is by using public drinking cups, public towels in bathrooms and improperly washed cooking utensils, etc. Brouner would prohibit the practice of passing around drinking water in public places of amusement because of the danger of infection that lurks in them. Hospitals, dispensaries and public buildings, he declares, should not be provided with public drinking cups, but with individual paper cups. The public should also be instructed as to what to demand from their dentists in the way of aseptic instruments. It is too common a practice for dentists not to pay any attention to the advances made in knowledge of asepsis.

Northwestern Lancet, Minneapolis

August 1

- 38 *Diagnosis and Treatment of Epidemic Cerebrospinal Meningitis with Flexner's Antimeningitis Serum. S. M. White, Minneapolis.
- 39 Abdominal Pain: Its Clinical Significance. G. Eusterman, Rochester, Minn.

38. **Flexner's Antimeningitis Serum.**—From a limited experience with the use of Flexner's serum, White concludes that it may be difficult or impossible to find Gram-negative intracellular cocci in the exudate in certain cases of infection with *Diplococcus intracellularis meningitidis*. This is especially true in a severe, almost fulminant, type, and this experience has been reported by other observers. In the presence of positive symptoms of meningitis and with the absence of an etiologic factor, such as pneumonia, endocarditis, or injury, and when the fluid removed is cloudy, giving positive evidence that a meningitis exists, White says the serum should be used as though the presence of *Diplococcus intracellularis meningitidis* was proved, until such time as cultures or other evidence reveals the nature of the infection. It is advisable to adopt this attitude only when one has had experience with meningitis, sufficient to make him sure of his ground, and it is only the occasional case in which one will need to wait for the results of culture before making a positive diagnosis. Additional encouragement to the use of the serum in a case where one must wait for the results of culture before making certain diagnosis is afforded by marked improvement in the condition of the cerebrospinal fluid.

Virginia Medical Semi-Monthly, Richmond

July 22

- 40 Rectal Carcinoma—Digital Examination. G. B. Justice, Marion, N. C.
- 41 Practical Eye and Ear Points of Interest to the Practitioner. C. P. Jones, Newport News, Va.
- 42 Crotalin Injections Through the Thoracic Walls as a Means of Treating Pulmonary Cavities. T. J. Mays, Philadelphia.
- 43 Cretinism, Juvenile and Adult Myxedema: Exophthalmic and Simple Goiter. H. E. Jones, Roanoke, Va.
- 44 Treatment of Enlarged Senile Prostate and Specific Prostatitis and Arteriosclerosis by Electricity. J. C. Walton, Richmond.
- 45 The Medical Inspection of Schools. J. G. B. Bulloch, Washington, D. C.
- 46 Refraction by the General Practitioner. M. L. Dalton, Floyd, Va.

Pennsylvania Medical Journal, Athens

July

- 47 *Restoration of the Upper Eyelid. E. B. Heckel, Pittsburgh.
- 48 *Achoondroplasia. M. H. Fussell and H. K. Pancoast, Philadelphia.
- 49 *Early Diagnosis of Pulmonary Tuberculosis. C. H. Miner, Wilkes-Barre.
- 50 *Roentgen-Ray Diagnosis of Pulmonary Tuberculosis. C. L. Leonard, Philadelphia.
- 51 *Tuberculosis of the Lungs without Cough or Expectoration. J. Walsh, Philadelphia.
- 52 *The General Practitioner and the Incipient Case of Pulmonary Tuberculosis. A. A. Watkins, St. Benedict.
- 53 *Prognosis in Advanced Tuberculosis. W. B. Stanton, Philadelphia.
- 54 Treatment of Tuberculosis. A. P. Francine, Philadelphia.
- 55 *How May Inflammations of the Accessory Sinuses of the Nose Occasion Inflammation of the Orbit and Eyeball. H. E. Hansell, Philadelphia.
- 56 *The Sphenoid and Ethmoid Sinuses in Their Relation to Eye Diseases. D. B. Kyle, Philadelphia.
- 57 *Ocular Symptoms Caused by Intranasal Diseases. J. F. Culp, Harrisburg.
- 58 Differential Diagnosis of Orbital Conditions Caused by Sinusitis, Including Thrombosis of the Cavernous Sinus. W. Reber, Philadelphia.
- 59 Diagnosis and Treatment of Pleurisy with Effusion. D. Riesman, Philadelphia.
- 60 Opium Poisoning. J. V. Shoemaker, Philadelphia.

47. **Restoration of the Upper Eyelid.**—Heckel's case was that of a negro who was so burned in a mine explosion in January, 1908, as to destroy completely both upper eyelids. Thiersch or epithelial grafts were used. The right eye was operated on in July, 1908; the left in the following September. The graft for the right eye was taken from the right arm and for the left eye from the left arm. The final results were excellent.

48. A paper on the same subject by Pancoast was abstracted in THE JOURNAL, Oct. 16, 1909, p. 1321.

49 to 53. Abstracted in THE JOURNAL, Oct. 30, 1910, p. 1506.

55, 56, 57. Abstracted in THE JOURNAL, Nov. 6, pp. 1588, 1589.

Southern Medical Journal, Nashville

July

- 61 Surgical Aspect of Stone in the Kidney. J. A. Crisler, Memphis.
- 62 Tumors of the Bladder. E. M. Sanders, Nashville.
- 63 Zoologic Aspect of Ucnariasis. W. S. Leathers, University, Miss.
- 64 Extrauterine Pregnancy. J. H. McNeill, Olive Branch, Miss.
- 65 Treatment of Retrodisplacements of the Uterus. L. E. Burch, Nashville.
- 66 Convulsions in an Adult from Copremia. P. Norris, Rutherfordton, N. C.
- 67 The Toxemias of Pregnancy. G. C. Trawick, Nashville.
- 68 Sprained Ankle. D. Eve, Nashville.
- 69 Cure of Tuberculosis by the General Practitioner. D. L. Wilder, Knoxville, Tenn.

Military Surgeon, Washington, D. C.

August

- 70 The Army Medical Service. V. C. Vaughan, Washington, D. C.
- 71 Venereal Diseases in the United States Army: Prevention and Treatment. L. M. Maus, U. S. Army.
- 72 Work of the Board for the Study of Tropical Disease in the Philippines. W. P. Chamberlain, H. D. Bloombergh and E. D. Kilbourne, U. S. Army.
- 73 Blastomycetic Dermatitis. T. W. Jackson, U. S. Army.
- 74 Pupil Conditions in Aliens, Their Significance, and Suggestions. E. H. Maullan, U. S. P. H. and M.-H.S.
- 75 The Farmer Recruit and the Medical Officer of the National Guard—What They Mean to Our Commonwealth. J. C. Minor, U. S. Army.
- 76 Wassermann Reaction in the Military Service. M. A. Reasoner, U. S. Army.
- 77 Hysterical Amnesia. H. Butts, U. S. Navy.
- 78 Creeping Eruption. H. I. Raymond, U. S. Army.
- 79 Idem. H. R. Gosman, U. S. Army.

Surgery, Gynecology and Obstetrics, Chicago

August

- 80 *The Question of Metastasis of Carcinoma in the Ovaries and Douglas's Cul-de-Sac. J. Rosenstirn, San Francisco.
- 81 *The Influence of Trauma in the Production of Diseases of the Pelvic Organs in Women. M. L. Harris, Chicago.
- 82 Diagnosis of Hyperthyroidism or Exophthalmic Goiter. C. H. Mayo, Rochester, Minn.
- 83 Non-Parasitic Multilocular Cysts of the Spleen. R. H. Fowler, Brooklyn.
- 84 *Vaccine Therapy as an Adjunct to Surgery. J. B. Deaver, J. C. DaCosta, D. B. Pfeiffer, Philadelphia.
- 85 *Further Experimental Data on the Vasomotor Relations of Shock. M. G. Seelig and E. P. Lyon, St. Louis, Mo.
- 86 Pathology of the Thyroid and Hematology in 100 Goitrous Chicago Dogs. A. Werelius, Chicago.
- 87 *The Cammidge Reaction. B. C. Willis, B. F. McGrath, J. T. Pilcher and D. C. Balfour, Philadelphia.
- 88 *Treatment of Traumatic Injuries of the Lungs and Pleura. G. M. Dorrance, Philadelphia.
- 89 *Liver Abscess. F. W. Dudley, Manila, P. I.
- 90 Bone Grafting and Osteoplasty. E. P. Magruder, Washington, D. C.
- 91 *A Deceptive Form of Appendicitis in Women. H. A. Croezen, St. Louis.
- 92 *Closing Incisions in the Renal Pelvis. H. A. Kelly, Baltimore.
- 93 *Operation for Cystocele. W. P. Graves, Boston.
- 94 Rectal Anesthesia. J. F. Churchill, Chicago.
- 95 Treatment of Eclampsia by Dilatation or Incision of the Cervix. R. Peterson, Ann Arbor.
- 96 Use of Oxygen in Treatment of Asphyxia Neonatorum. F. C. Holden, Brooklyn.
- 97 *A New Uterine Forceps. A. J. Schoenberg, Chicago.

80. Metastasis of Carcinoma in the Ovaries.—An examination of 15 cadavers by Rosenstirn showed that carcinoma in the abdominal cavity may cause an implantation metastasis in the cul-de-sac of Douglas. It occurs earlier than that of the ovaries. It is influenced in its origin by the law of gravity and therefore affects first the deepest part of the pouch. It is not necessary in these cases that the primary carcinoma has perforated into the free abdominal cavity—a sarcoma still entirely covered by serosa can cause implantation by metastasis in the cul-de-sac of Douglas. Rosenstirn emphasizes that it should be recommended in radical operation of carcinoma of the organs in the abdominal cavity to remove the deepest situated part of the Douglas cul-de-sac, i. e., the pouch.

81. Trauma in Production of Pelvic Diseases.—Among the last 1,000 cases of railway accidents that have come under Harris' personal supervision 412 were women, and of this number 77, or 18.7 per cent., claimed injury to the pelvic organs as a direct result of the accident. In 24 patients a miscarriage resulted. The youngest woman was 20 years old, and had already had two children. The oldest was 49 and had also had two children. It is interesting to note that in

all but one of the patients, the miscarriage occurred before the fifth month. It is perfectly plain, says Harris, that many of the conditions found, namely, old lacerations, rectocele, cystocele, prolapses, old displacements, intraligamentous cysts, pelvic tumor, etc., bore no causal relation to the accidents; on the other hand, it is equally plain that a ruptured extrauterine pregnancy, an acute volvulus, a twisted pedicle of the ovarian tumor, a pelvic hematoma, the miscarriages, etc., were the direct result of the accidents. The chief question is whether intrapelvic diseases such as salpingitis, metritis in its various forms, displacements of the ovaries and uterus, etc., can be caused or initiated by such accidents as have been described above.

Of much interest and importance in this connection is the married or single state of the women. Of the 412 women injured, 331 were married and 81 single. Of the 76 women claiming some form of injury to the pelvic organs (eliminating the one who merely injured the vulva by sitting down on her heel) 72 were married and 44 were single, but of these 4, 3 were single in name only, as one was pregnant at the time, two showed unmistakable signs of marital relations, and one of these had an old infection. One only was actually a miss and the only pelvic disturbance she had was a slight irregularity of menstruation for 2 or 3 months. Of the married women 22 per cent. claimed injury to the pelvic organs while of the actually single only 1 per cent. had a temporary disturbance of menstruation. The inferences to be drawn from these facts are, that women with normal, healthy pelvic organs very rarely, indeed, have these organs injured by such accidents as described, while those whose organs have been damaged by the violence of parturition or from the effects of previous infections, may have former symptoms temporarily aggravated or acute exacerbations of an old infection.

84. Abstracted in THE JOURNAL, July 9, 1910, p. 160.

85. Vasomotor Relations of Shock.—Seelig and Lyon's work points, in every instance, against the correctness of the theory that shock is a symptom complex due primarily to vasomotor exhaustion.

87. Abstracted in THE JOURNAL, June 4, 1910, p. 1891.

88. Traumatic Injuries of the Lungs and Pleura.—This is an exhaustive experimental study which cannot be presented in abstract in the limited space at our disposal.

89. Liver Abscess.—Dudley has treated several hundred cases of amebic dysentery since 1899, by both the colonic irrigation treatment and the ipecac method, and has found the latter treatment to be more prompt and sure in its effects. The ipecac treatment he found prompt and efficient. If instituted at an early stage, the patient does not have to be confined to home or hospital for more than 5 or 6 days and the treatment seldom needs to be repeated unless there has been a reinfection. The method of administration of ipecacuanha, with some important modifications, is that described by Manson. A preliminary dose of castor oil and laudanum is given and the patient put on a milk diet. After abstaining for 4 hours from both food and water, 2 grams of ipecac are given, in 6 pills, with just as little water as possible. The patient must lie on the back in bed, in a dark room, and should not be allowed to talk or be in any way molested. No food or liquid should be taken for 8 hours after taking the medicine. After the 8 hours are up the patient may take milk and water liberally until 4 hours before the time for the next dose. Dudley usually has the patient fast from 4 p. m. and gives the pills at 8 p. m. In this way food may be taken during a good part of the day. If the pills are so made that they will pass out of the stomach without dissolving, the preliminary dose of tincture of opium and the mustard plaster to the stomach may be dispensed with without fear of nausea. If at any time nausea should occur, an ice bag about the throat gives most relief. Grams 1.650 are given on the second day; 1.325 on the third; 1.0 on the fourth; 0.650 on the fifth, and 0.325 on the sixth day. The patient is now put on light diet and a 0.325 gm. pill is given for 6 days longer, when the cure is usually complete, although in some cases it may be necessary to continue for 12 days.

In this method of administration the making of the pills is a very important matter, Dudley says. The pill mass is best made with the extract of glycyrrhiza. The pills are then coated heavily with salol or enclosed in kreatinized capsules. If kreatinized capsules be not at hand the pill mass may be put in the ordinary gelatin capsules and the space between cover and body of the capsule sealed with a little liquid gelatin. The capsules are then placed in a Petri dish and a few drops of formalin are put in a dish so as not to touch the capsules. The cover is then placed on and allowed to remain for about 8 hours. The capsules should be exposed to the air for 6 or 8 hours before use as otherwise they will prove irritating to the stomach. This method of treatment has proved of value in the catarrhal, bacillary, amebic and balantidium forms of dysentery and in diarrhea.

91. Abstracted in THE JOURNAL, Jan. 22, 1910, p. 315.

92. Closing Incisions in Renal Pelvis.—For some years past Kelly has been in the habit of utilizing, in closing the renal pelvis, the lamella of Gerota's fascia (fatty capsule) which spreads out over the posterior surface of the kidney as well as its pelvis. The tissue of the pelvis *per se* affords no satisfactory secure hold for sutures closing an incision made, say, in extracting a calculus, but when this fibrous capsule is caught and sutured as an additional layer overlying the pelvis proper the whole is bound securely together and such a wound rarely leaks. Another valuable use of this fascial layer is in plication of the hydronephrotic pelvis. It is here the firm hold for the needle is secured in passing from the margin of the kidney where the fascia is unusually strong down toward the ureter and back again to the margin in the form of the letter V.

93. Operation for Cystocele.—The operation described by Graves aims to reduce the two component parts of the cystocele in such a manner as to restore the anterior wall to its natural contour and to eliminate all irregularities and protrusions which may impinge on a snugly repaired perineum. The operation as it is now performed by Graves, is somewhat less complicated than formerly described, but the essential principle is the same.

97. A New Uterine Forceps.—The uterine forceps devised by Schoenberg is to be used for the purpose of operating on the tubes, ovaries or round ligaments. The jaws are covered with rubber tubing.

Louisville Monthly Journal of Medicine and Surgery

August

98 Therapeutic Value of Calcium Lactate. J. J. Moren, Louisville.

Archives of Ophthalmology, New York

July

- 99 The Ocular Manifestations Associated with Acne Rosacea: Case of So-Called Rosacea Keratitis. T. B. Holloway, Philadelphia.
- 100 Methyl Alcohol Amblyopia. E. Gruening, New York.
- 101 Bacteriologic Examination of the Conjunctival Sac Previous to Cataract Extraction. H. S. Gradle, Prague, Germany.
- 102 Hyalin Degeneration of the Cornea. J. Rubert, Kieff, Germany.
- 103 The Etiology of Bilateral Congenital Corneal Opacity. R. Seefelder, Leipzig, Germany.
- 104 Influence of Pregnancy and Labor on Diseases of the Eye. J. Fejer, Budapest.
- 105 The Pathogenic Element of Trachoma. Dr. Addario, Palermo, Italy.

California State Journal of Medicine, San Francisco

August

- 106 The Essentials of Surgical Diagnosis in Fractures. T. W. Huntington, San Francisco.
- 107 *Epidemic Meningitis in California and its Treatment with Flexner's Antimeningitis Serum. P. K. Brown, San Francisco.
- 108 Treatment of Fractures of the Humerus Through the Musculo-spiral Groove. R. Brown, Santa Barbara.
- 109 Theocin Poison. E. Schmoll, San Francisco.
- 110 Pain as a Symptom in Secondary Syphilis. E. W. Twitchell, Sacramento.
- 111 *Skin Diseases in the Hawaiian Territory—(Sun a Modifying Factor). H. E. Alderson, San Francisco.
- 112 Acute and Chronic Prostatitis. V. G. Veckl, San Francisco.
- 113 Causes and Diagnosis of Prostatic Hypertrophy. M. Krotoszyner, San Francisco.
- 114 Palliative Treatment of Prostatic Hypertrophy. E. G. McConnell, San Francisco.
- 115 Operative Treatment of Prostatic Hypertrophy. G. S. Peterkin, Seattle.

107. Flexner's Antimeningitis Serum in Meningitis.—To date, the serum has been used in 38 cases, in nearly all of which Brown has seen the patient at least once. There have been 12 deaths, or a mortality of 30 per cent. Of the deaths, 1 occurred in an epidemic where the serum gave out, after decided improvement of the patient from its use; 4 patients were moribund when injected; 1 patient got streptococcus infection of the spinal canal (relapsed case); 1 died of acute diffuse myelitis after 7 injections; 2 patients were treated entirely by other physicians, with meager directions, and no complete data of the result was ever furnished Brown. Two of the 9 occurred in an epidemic on Goat Island, 1 a fulminant case, after a single injection of 2/3 the present dosage; and 1, a recurrent case, 6 weeks after the first attack in which the disease was probably very diffusely spread over the meninges. There have been 2 relapses in the 38 cases, both patients dying. Neither was so promptly treated in the relapse as in the first attack.

111. Skin Diseases in the Hawaiian Territory.—Some dermatoses, according to Alderson, are modified not by the heat of the sun, but rather by some other effects of its rays. In the Hawaiian Territory senile keratoses, various other pre-epitheliomatous conditions, basal cell epithelioma and cutaneous neoplasms in general are extremely rare. It cannot be denied that the sun's beneficent rays are a factor here also. In such a uniformly warm climate as that of Honolulu, the skin is naturally more or less hyperemic, and moist most of the time. It is due to this state of affairs that the use of the Roentgen ray demands extreme care and vigilance, for under these circumstances radiodermatitis develops very easily, as was proved in a number of cases in which exposure was not unduly prolonged (as measured by standards elsewhere) and severe burns resulted.

Journal Tennessee State Medical Association, Nashville

July

- 116 *Enlargement of the Prostate. L. E. Burch, Nashville.
- 117 *Chronic Prostatitis. G. R. Livermore, Memphis.
- 118 *Phases of the Diagnosis and Treatment of Prostatic Obstruction. B. Lewis, St. Louis.

116 to 118. Abstracted in THE JOURNAL, April 23, 1910, pp. 1400. 1401.

Woman's Medical Journal, Cincinnati

July

- 119 Obstetric Complications from a Preventive Point of View. E. V. Davis, Chicago.
- 120 Essential Paroxysmal Tachycardia. A. Martine, Utica, N. Y.

Western Medical Review, Omaha

August

- 121 Experimental Work on the Etiology of Poliomyelitis. L. B. Pillsbury, Lincoln, Neb.
- 122 *Clinical Varieties of Poliomyelitis. H. M. McClanahan, Omaha.
- 123 *Poliomyelitis in Polk County, Nebraska, During 1909. C. A. Anderson, Stromsburg, Neb.
- 124 *Fifty Cases of Poliomyelitis. J. C. Malster, Stromsburg, Neb.
- 125 Acute Poliomyelitis. F. E. Coulter, Omaha.
- 126 Epilepsy. M. W. Phifer, Wheatland, Wyo.

122. Varieties of Poliomyelitis.—In McClanahan's opinion all cases of poliomyelitis may be grouped under five heads, spinal, bulbar, meningeal, polyneuritic and abortive. His experience includes a study of 45 cases; about 15 of the patients he saw during the acute stage in consultation with other physicians, while the others were examined after recovery from the acute symptoms. In all cases he had a good, clear, clinical history, and many of the patients he has had opportunity of seeing a number of times. The ordinary or spinal type is the form of poliomyelitis as described by Charcot. In the bulbar type there is an involvement of the nuclear centers in the medulla oblongata. McClanahan saw 4 cases of this type, all being fatal. In one there was paralysis of the facial nerve and in another, paralysis of the motor nerves of the eye, without the face being involved. By the meningeal type is meant that in which the onset is characterized by meningeal symptoms, fever, pain, often headache, neck rigidity and more or less unconsciousness. Indeed, some of these cases in the beginning are so similar to epidemic cerebrospinal meningitis, that the physician may easily make such a diagnosis. McClanahan saw one case that from the symptoms was typical of meningitis, and but for the presence of poliomyelitis in the vicinity he would have made this

diagnosis. But in that case a lumbar puncture with a clear fluid, and the subsequent history, established the fact that it was not a true meningitis but a meningeal type of poliomyelitis.

In the polynuritic type of cases there is generally hyperesthesia, with suffering and sometimes intense, agonizing pains, usually in the lower extremities or in the back. McClanahan saw one such case. The pains in the back and extending down the left leg were so intense that for several days it was necessary to keep the child under the influence of opiates. The subsequent history of the case was that the pains gradually subsided with loss of power in the leg and permanent paralysis of the anterior tibial group of muscles. Finally, in all epidemics of poliomyelitis, alongside of the true cases which have developed all the symptoms of paralysis, there are the abortive cases, in which there occur all the symptoms of the onset of the disease, but in which there is no paralysis, the patients being ill but a few days and making a complete recovery. In other words, there is some general infection, but no lasting symptoms. Except in the presence of an epidemic, McClanahan says the diagnosis of the abortive type could not be made, without the occurrence of the disease in other children, in the same household. In that case, if the child had all the symptoms, and recovered in a few days, without paralysis, then such a diagnosis would be justified.

123. Poliomyelitis.—From May 30 to July 4, 1909, there occurred in the Stromsburg territory (a place of residence) 30 cases, while from July 4 to August 3, there were 115 cases. The first case that is suspected of being infectious poliomyelitis in Polk County occurred about the middle of May, 1909. The patient was a child 5 or 6 years old who came from some distant part of the state, just after recovering from the acute stage. The first case that Anderson saw occurred 11 miles northwest of Stromsburg on May 30; the patient had been ill for one week and during that time had been under the care of a physician from the nearest town who had made a diagnosis of influenza. Of the 86 patients seen by Anderson, 84 per cent. were less than 10 years old. In 40 families of 150 children, 86, or 57 per cent., contracted the infection. Isolation of the sick was carried out so far as possible, and when many were sick in one family infection had usually occurred before medical aid was called.

The number of patients who recovered from the acute symptoms in less than a week was 32. Thirty of these showed no marked paralysis, except that a leg might suddenly give way while walking along, thus causing the little patient to fall oftener than usual. The spine was more or less spastic, especially in the cervical region and the gait commonly stiff and awkward. The remaining 2 were paralyzed as follows: left leg and right arm, recovery almost complete in 5 months; mental symptoms, recovered in 9 months. Seventeen recovered from acute symptoms at the end of a week; 8 had no well-defined paralyzes, and 9 were paralyzed. Three have not yet fully recovered; facial paralysis, one leg and back; both legs, subsequent history unknown. Seven recovered from the acute symptoms at the end of 2 weeks, one without paralysis and 6 paralyzed. Two recovered from paralysis as follows: one was affected mentally and recovered in one week; one eyelid paralyzed, recovered in 2 months; two paralyzed in one arm and two in one leg and were not completely recovered for 8 months.

Twelve patients recovered from the acute symptoms at the end of 3 weeks, and all were paralyzed. Six recovered from paralysis as follows: one leg recovered in 7 months; right arm recovered in 6 weeks; diffuse weakness, recovered in one week; both legs and back recovered in 2 months; both legs recovered in 5 months. Six patients have not yet (8 months) fully recovered from their paralysis: Right leg two patients; left leg, one; left leg and trunk, one; left leg, one; one arm and one leg, one. Seven patients recovered from the acute symptoms at the end of 4 weeks, and 3 recovered from the paralysis in 3 months: Both legs, 2 cases; one leg, one. Four have not yet (8 months) recovered from the paralysis: right leg; both arms; both legs and trunk. Of the 82 surviving patients, 48, or 60 per cent., were at first markedly paralyzed, and, of

these, 27 have since functionally recovered, while 21 are yet more or less paralyzed, many of whom will need some orthopedic treatment to prevent deformity. Four patients in this series died, all of bulbar paralysis.

The treatment was eliminative and supportive with rest in bed in the lateral position. Cold was applied to the head and counter irritation used along the spine. Hot baths after the fever stage seemed to relieve the intensity of the neuritic pain somewhat. One patient improved remarkably during the night following the fumigation, while inhaling the formaldehyd fumes yet remaining in the bed clothing. The previous day the pain and the muscular contracture of the leg prevented extension of the knee to more than right angle, while the following day it could be extended completely, and even permitted some walking. No especial importance is attached to this, however, as improvements were frequently sudden.

124. Poliomyelitis.—Malter treated 54 cases of epidemic poliomyelitis occurring in 40 families. Four of these patients were adults: Children in families, 96; children that had it, 50; families in which all children had it, 21; families of only one child, 10; paralyzed (30.3 per cent.) 16; recovered from paralysis (66.2-3 per cent.) 11; left paralysis (33.3 per cent. or 10 per cent. of all) 5; deaths 1 per cent.; recurrences 2; paralyzed, able to walk (one not old enough) 3; paralyzed before called (these are the only ones that cannot walk) 2. Ages of patients 9 days to 37 years. Of the 50 children, the oldest two were 10 and 12 years, and the remainder under 10 years. Nearly every case could be traced to some other case or to a locality where the children played together. Quarantine checked it and caused fewer in the family to have the disease; and isolation, together with care in not allowing kissing of the sick, eating and drinking after the sick, etc., also helped to check it.

Ophthalmology, Seattle, Wash.

July

- 127 Suggestion for an Operation for Chronic Glaucoma. R. Denig, New York.
- 128 Glaucoma Following Cataract Extraction. B. Chance, Philadelphia.
- 129 Id. H. G. Goldberg, Philadelphia.
- 130 Id. S. D. Risley, Philadelphia.
- 131 Things that Happened to me in my Operative Career. J. H. Claiborne, New York.
- 132 Treatment of Congenital Argamblyopia. W. L. Phillips, Buffalo.
- 133 Facts, Old and New, About the Lacrimal Apparatus. E. E. Blaauw, Buffalo.
- 134 Supra-Orbital Neuralgia. J. I. Dowling, Albany.
- 135 Trauma of the Eye. R. Kerry, Montreal.
- 136 Repair of the Cornea. F. H. Koyle, Hornell, N. Y.
- 137 A Rare Anomaly of the Inferior Central Vein of the Retina. C. A. Bahn, New Orleans.
- 138 Epibulbar Sarcoma. C. A. Veasy, Spokane, Wash.

Bulletin Lying-in Hospital, New York

March

- 139 Sternopagus Tetrabrachius. J. W. Markoe, New York.
- 140 Normal Human Blood Serum as a Curative Agent in Hemophilia Neonatorum. J. E. Welch, New York.
- 141 Peritonitis in Young Infants. C. G. Burdick, New York.
- 142 A Modified Obstetric Forceps. G. W. Kosmak, New York.
- 143 Ichthyosis Congenita. H. J. Schwartz, New York.
- 144 The Stomach Contents and Motility in Breast-Fed Infants. H. Helman, New York.
- 145 Cerebrospinal Meningitis and General Streptococcemia Complicating Pregnancy: Cesarean Section. A. B. Davis, New York.
- 146 Five Successive Cesarean Operations on One Patient. A. B. Davis, New York.

140. Published in the *American Journal of Medical Sciences*, June, 1910, and abstracted in *THE JOURNAL*, July 2, 1910, p. 83.

141. Peritonitis in Young Infants.—Two cases of peritonitis in young infants are reported by Burdick. The infection in both cases was probably through the umbilicus, although there was no gross lesion in either instance. In one of the cases it is fair to suppose that erysipelas in the mother was the source of the infection, although there were no cutaneous lesions on the body.

142. A Modified Obstetric Forceps.—The particular field in which Kosmak's instrument could be used is limited to that class of cases in which the fetal head is caught at the outlet, where the patient's pains have simply given out and

no further progress of the advancing head is possible. The head may remain in this situation for a considerable time unless it is assisted over the remaining portion of the birth canal by means of forceps. In the instrument described, the hand of the operator comes close to the fetal head which can thus be more readily controlled. As the handles of the instrument are not elevated to the extent which they are in the long-bladed forceps, the points of the blades are not so apt to cut into the perineal floor as the head is being delivered. The Tucker-McLane instrument has been used as the basis of Kosmak's idea. With the exception of being slightly narrower, the size and contour of these blades are the same as in the large forceps, but instead of the usual shank the blades are inserted directly into the handles. The pelvic curve is also slightly less than in the ordinary instrument.

144. **Stomach Contents and Motility of Breast-Fed Infants.**—The stomach was found empty by Heiman at the end of 2 hours in 4 out of 13 cases, and in 5 out of 9 at the end of 3 hours, and in 5 out of 6 at the end of 4 hours. Free hydrochloric acid was present in 2 patients, 7 and 8 months of age, respectively. Pepsin was present in only 6 cases. Rennet was demonstrated in all but 2 cases, lactic acid was present in all but 3 cases. These data differ considerably in many respects from those recorded in previous studies.

American Journal of Urology, New York

July

- 147 Entire Absence of Right Kidney, Ureter and Blood Vessels. J. N. Vander Veer, Albany.
- 148 Surgical Aspect of the Abnormally Movable Kidney. O. C. Smith, Hartford, Conn.
- 149 Bacterin Therapy in Urethral and Prostatic Infections. E. G. Mark, Kansas City, Mo.
- 150 Anastomosis of the Vas: Time Following Operation Necessary for Successful Issue. G. K. Swinburne, New York City.
- 151 Hemorrhages from the Male Urethra. A. Ravogli, Cincinnati.

Journal of the Arkansas Medical Society, Little Rock

July

- 152 The Pharmacologic Action and Therapeutic Uses of Alcohol. C. E. Witt, Little Rock.
- 153 *Intramuscular Injection of Mercury; Especially the Insoluble Preparations. E. C. Hay, Hot Springs.

153. Abstracted in THE JOURNAL, June 11, 1910, p. 1992.

Maryland Medical Journal, Baltimore

August

- 154 *The Importance of the Eugenic Movement and its Relation to Social Hygiene. L. F. Barker, Baltimore.
- 155 The Advantages of Operations for the Cure of Hernia. A. McGlannan, Baltimore.
- 156 *Care of Epileptics in Separate Institutions. W. T. Shanahan, Sonyea, N. Y.
- 157 Eclampsia. A. Samuels, Baltimore.

154. **Eugenic Movement.**—This survey of the subject of eugenics is closed by Barker as follows:

Fragmentary as has been this presentation, I trust that it may stimulate thought regarding the eugenic ideal, and hope that the subject will be studied and that the people may become instructed in it. In becoming thorough eugenicists, we shall act in accordance with the highest aims and purposes of all persons interested in true social hygiene. Though the old doctrine of predestination gets new support from the recent studies, these studies also teach us how mankind can control its destiny. It will be absolutely necessary to attack the problems of (1) the improvement of races and families, and (2) the extinction of hereditary disease in the one single way in which permanent betterment is possible. We must more consciously control the union of germ-cell qualities, and we can do this by creating new sentiments regarding marriage and parenthood.

156. **Epileptics in Separate Institutions.**—Shanahan urges that the patients should be divided into the voluntary and the legally or judicially committed. Many of those sent to a colony should be kept there indefinitely, both for their own good and for that of the public. The colony authorities should also have power to secure the commitment of those whose mental condition precludes their being able properly to become resident outside of an institution. The patients committed should, as a rule, be kept in the colony during the remaining years of their life. This might be at first, perhaps, looked on as a hardship, but when they learned that the restrictions laid on them were not unduly severe, they and their relatives would, as a rule, cooperate to the best of their ability. The epileptic who is congenitally defi-

cient to a marked degree or the one who is profoundly demented, will not improve as a result of colony treatment. The average epileptic does, however, show some improvement after a residence of several months, and from 3 to 4 per cent. have a complete cessation of seizures. At the Craig Colony 16 patients have been free from seizures for 2 years or longer, and in 14 years, 46 have been discharged as recovered. Shanahan can see no good reason why, if properly planned, a colony cannot be arranged so as to care for all types and classes of epileptics, thus enabling the other institutions for the abnormal to carry out their work to better advantage.

St. Louis Medical Review

July

- 158 Rupture of the Intestine from Abdominal Traumatism. H. P. Kuhn, Kansas City.
- 159 Drugs that Increase Oxidation. G. F. Butler, Chicago.
- 160 A Plea for Statistics on Paretic Dementia in Railway Employees. F. Fry, St. Louis.
- 161 Sphere of Ophthalmology Incumbent on the Practitioner. M. Weiner, St. Louis.
- 162 Surgical Treatment of Bone Tuberculosis in the Adult. A. E. Horwitz, St. Louis.

Journal South Carolina Medical Association, Charleston

June

- 163 *Epidemic of Beriberi. A. J. Jervy, Charleston.
- 164 Beriberi. F. W. P. Butler, Columbia.
- 165 Appendicostomy. H. R. Black, Spartanburg.
- 166 *Pulmonary Tuberculosis. L. B. Morse, Hendersonville.

163, 166. Abstracted in THE JOURNAL, May 28, 1910, pp. 1815, 1816.

Yale Medical Journal, New Haven, Conn.

June

- 167 *Defectives and Degenerates: A Menace to the Community. J. M. Keniston, Middletown, Conn.
- 168 *Fresh Animal Serum in the Treatment of Hemorrhage. C. T. Beach, Hartford, Conn.
- 169 Features of Nasal Surgery. J. H. Egbert, Willimantic, Conn.

167. **Defectives and Degenerates.**—Keniston urges that the state law prohibiting the marriage of epileptics and the feeble-minded should be enforced. It should be somebody's business to enforce it. All "imbeciles with criminal instincts" should receive life-long care and supervision. Sterilization of the unfit—vasectomy—is essential, as it benefits the individual as well as the community. Prevention is the most important thing, if it be possible. Every physician should study and record every defective or degenerate he knows to be such.

168. **Animal Serum in the Treatment of Hemorrhage.**—Beach reports 8 cases, 3 in which the serum was used as a prophylactic and in 5 in curative doses, 2 of the latter patients being hemophiliacs.

Journal of Abnormal Psychology, Boston

June-July

- 170 The Relative Value of the Affective and the Intellectual Processes in the Genesis of the Psychosis Called Traumatic Neurasthenia. T. A. Williams, Washington, D. C.
- 171 The Anxiety Neuroses. A. A. Brill, New York.
- 172 The Nature and Cause of Galvanic Phenomenon. B. Sids, Brookline, Mass.

Journal Advanced Therapeutics, New York

July

- 173 Ionic Surgery in Cancer of the Mouth and Nose. G. B. Massey, Philadelphia.
- 174 The Clinical Application of Various Electrical Modalities. J. H. Burch, Syracuse.
- 175 Electrotherapeutics in Gynecology. W. H. White, Boston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 30

- 1 *The Evolution of the British Medical Association and its Work. H. T. Butlin.
 - 2 *The Dominance of Etiology in Modern Medicine. J. M. Bruce.
 - 3 *Malignant Disease. H. G. Barling.
1. **Evolution of the British Medical Association.**—Butlin limits himself entirely to an historical review of the British Medical Association.

2. **Modern Medicine.**—After a brief review of some of the most important advances which have been made in medical science and practice during the 15 years which have elapsed since the Association last held its meeting in London, Bruce draws attention to the general nature and character of the progress made. This, he points out, has been chiefly characterized by a change in the general tendency and direction of investigation, so that instead of concentrating attention on the lesions produced by disease we have advanced to the elucidation of the processes leading up to those lesions, the causes determining them, and the various influences controlling and modifying the actions of those causes. The recognition of the paramount importance of etiologic considerations and of the closely cognate subject of functional pathology is regarded by Bruce to be deserving of historic recognition as the dominant feature of the medical research of the past 15 years.

After demonstrating the fundamental importance of the doctrine of causation, Bruce proceeds to analyze the nature of causative processes and of their relation to one another. Taking as an example acute infections, he differentiates three factors—first, the essential cause, which is specific in nature and extrinsic in origin; second, the patient's resistance, which is intrinsic; and, third, those various conditions which favor the action of the exciting cause, and are usually classed as incidental, indirect, or predisposing causes. It is more particularly to this third etiologic factor that Bruce devotes the greater part of his address, pointing out the importance of these considerations to the practitioner, not only as most valuable aids to prognosis, treatment and personal hygiene, but also as affording him valuable opportunities to participate in the advance of medical science. The bedside, the home, and the general environment of the patient, he says, offer fields for research as hopeful and as fruitful as the laboratory. It is with a patient, not with a disease, that the experienced practitioner is concerned, with a process, not with a lesion. Such a man appeals to the clinical laboratory when it can assist in the discovery of the exciting cause or in the determination of the organ at fault, but in his actual search for the cause of disease in his patients he has more often to rely on personal observations of the subject, of his surroundings, habits and mode of life, on knowledge of particular family history, and, perhaps, on general knowledge of human nature, the outcome of worldly experience.

3. **Malignant Disease.**—Barling discusses the subject from three premises: (1) What experiment has taught us as to the growth of transplanted carcinoma and the methods by which immunity can be conferred on inoculated animals; (2) our knowledge of resistance to malignant disease in the human subject; (3) the means available for its successful treatment. He says that experiment has told us much of the growth of cancer, and of the means by which inoculated tumors may be inhibited and cured, but it has nothing yet to tell of the origin of cancer. Experimental immunity has so far been obtained within very narrow limits, and the alleged successful treatment of mouse carcinoma by a fluid from the human subject appears to contradict practically all that has been hitherto demonstrated with regard to experimental immunity.

Of the absolute nature of the resistance to malignant disease at present we know little, if anything. We cannot recognize the factor which heightens or lowers it, whether it be a chemical variation in the tissues, or an influence produced through the nervous system, stress or anxiety perhaps exaggerating or exaltation diminishing the activity of the growth. Barling thinks, however, that we can recognize one striking feature in the destruction of the cancerous epithelium which is common to the experimental production of immunity, to the disappearance of growths under radium, to spontaneous recessive processes in the human body. This is the active part played by the connective tissues; we have an irritative overgrowth, with hyperplasia and subsequent contraction, which appears to determine the death of the epithelial cell.

Speaking of the means available for the cure or the amelioration of malignant growths, Barling says that certain modes of treatment by cancer serums, by drugs, and by enzymes may be disregarded as futile. The x-rays have a real field of usefulness in relieving pain, in reducing the activity of inoperable growths, in healing rodent ulcers, if we are justified in including these among malignant formations. When, however, we examine the absolute curative value of this method of treatment, disappointment awaits us. Barling has never known an unequivocal malignant growth absolutely disappear under the influence of the x-ray, though apparently others have occasionally been more fortunate. Radium, he thinks, is curative in rodent ulcer, with this reservation, that the permanence of cure must be certified by a longer period of time than has yet elapsed in most of the cases treated. His main objection to the use of radium even tentatively in such cases is the constant danger of lymphatic and vascular dissemination which may occur in the period occupied by treatment. For the present he would limit radium to the treatment of the least hopeful conditions until much wider experience has been obtained.

As to the treatment advocated by W. B. Coley, especially for sarcoma, the use of the mixed toxins in Great Britain has not given such results as those attained by the originator of the treatment. In the majority of Barling's patients no improvement has been effected, but in others he can speak of improvement which promises cure if further lapse of time confirms the results at present attained. With such experience as he has made, Barling would not advise any patient with an operable sarcoma to adopt Coley's treatment, and he would dissuade him from it as a substitute for operation, but if operation were refused, or the growth were inoperable, he would advise the use of toxins, with the expectation that some patients would be greatly benefited. With every desire to use all means available which may relieve patients of the distress, anxiety, and possible mutilation which operation inflicts, with the belief that time will provide happier and gentler means than we now possess, Barling says that at the moment we have to rely on operative measures as the great remedy for malignant disease. If all malignant growths could be excised at a certain stage in their development all these patients could be cured.

Lancet, London

July 30

- 4 *The Evolution of the British Medical Association and its Work. H. T. Butlin.
- 5 *Recent Progress in Medical Science. J. M. Bruce.
- 6 *Malignant Disease. H. G. Barling.
- 7 *Pathology of Prostatic Enlargement. F. T. Paul.
- 8 *Helminthic Infection and its Relation to Eosinophilia. G. D. Whyte.
- 9 Volvulus of the Cecum and Ascending Colon. R. J. Pye-Smith.
- 10 *Successful Treatment by Colon Lavation of Some Cases of Eczema, Psoriasis, Urticaria, Acne, and Pruritus. A. Mantle.
- 11 Cesarean Section Undertaken in the Presence of Septic Infection. R. D. Maxwell.
- 12 Prevention and Correction of Deformity Following Arthritis of the Hip-Joint. R. P. Rowlands.
- 13 Pretuberculosis and Prepulmonary Tuberculosis: Their Diagnosis in Relation to School Inspection. W. Ewart.
- 14 *A Method of Staining Deep Colonies in Plate Cultures *in Situ* in Agar Media. E. Dodson.
- 15 Thrombosis of the Inferior Mesenteric Vein. A. A. Straton.

4, 5, 6. See Abstracts Nos. 1, 2 and 3.

7. **Pathology of Prostatic Enlargement.**—It is held by Paul that the accepted theories as to the cause of prostatic hypertrophy all fail because each can only apply to a limited number of cases. The prostate and the breast are both controlled by their respective dominant sexual glands and respond to their influence in a similar way in health and disease. Both organs are subject to a disturbing influence at the climacteric period, which may, and frequently does, result in a hypertrophic change. In such change the microscopic appearances in the two organs show a remarkable resemblance in all essential details. Prostatic hypertrophy, like the mammary involution hypertrophy, occurs only at the climacteric period, whereas there is no known neoplasm which is so strictly limited to an age-period. For these reasons, Paul considers that prostatic hypertrophy is not due to a chronic inflammation of

septic or specific type nor to a neoplasm, but that it is an involution change similar in character to that occurring in the mammary gland.

8. Helminthic Infection.—The work on which this study is founded was undertaken to ascertain whether the *Clonorchis sinensis* (syn. *Opisthorchis sinensis*, is or is not responsible for any degree of eosinophilia. In only 2.1 per cent. out of 512 patients examined did the feces fail to show the ova of one parasite or another. *Ascaris lumbricoides* was found in 76 per cent. of the cases, and was equally prevalent among students, merchants and farmers. *Trichocephalus trichiuris* was found in 72.6 per cent. All classes were equally infected by it. *Ankylostoma duodenale* and *Uncinaria americana*—one or other of these parasites was found in 60.4 per cent.; both were often present in the same individual. *Clonorchis sinensis* was found in 16 per cent. out of 267 patients examined at Chao-chow-fu, but in only 2 out of 295 patients in the hospital at Suabue. Both of these cases were imported from the Chao-chow region. The natives of both regions have the same dietetic and other habits. Whyte claims that the more varieties of parasite that infest a man, and the more numerous the individuals of each variety, the greater degree of eosinophilia he is likely to show. This will be especially marked if he is between 20 and 40 years of age, and will be less noticeable if he is older or is suffering from some form of tuberculosis.

10. Successful Treatment by Colon Lavation.—The benefit derived from lavage of the colon in certain cases of cutaneous eruptions suggested to Mantle that the skin disturbance should be more frequently associated with toxic absorption from the bowel than from the stomach, though doubtless the two absorptions are frequently associated. Mantle claims frequently to have found, after some experimental douches in cases of eczema, usually with, but at other times without, constipation, a considerable amount of mucus, and treatment directed to this abnormality has resulted in the cure of the skin manifestation. He has, therefore, been led to connect the abnormal condition of the colon with the eczematous condition of the skin, and to consider the latter as due to a toxemia of intestinal origin. When there is no skin eruption following a definite type with this condition of colon, there is usually a muddy appearance of the skin noticeable, and sometimes, in addition to this, an eczematous or other eruption. In several cases of psoriasis when the symptoms and experimental douching have pointed directly to an intestinal causation, the treatment already described has been brilliant in its results. In other cases with no particularly well-marked colitis good results have often, though not invariably, attended washing out the colon. A number of cases of acne vulgaris and of acne rosacea, the latter being in association with acne vulgaris, have been treated on these lines. Intestinal lavation has been prescribed with success, but as in practically all these cases there is found a lack of proper attention to the scalp, this as well as the face must receive special attention.

With pruritus ani there is not infrequently a certain amount of eczema around the anus, and the rectal mucosa is often involved in the itching. In all cases in which eczema has existed, Mantle has found it to be the external and visible sign of a catarrhal condition of the mucous membrane of the colon, and internal douches of alkaline sulphur water, followed by immersion baths of the same water, have brought about such a marked change in the condition of the colon that the local skin lesions have soon cleared up.

The method adopted in carrying out this special treatment by lavage for mucous colitis, associated or not with skin eruptions, is as follows: An alkaline sulphur water is generally used both for the intestinal douche and for the immersion bath which follows it. The object of the internal douche is to wash away old fecal matter and mucus from the colon, and to give the mucous membrane an antiseptic dressing. This is done in the following way: A long rubber tube, after being sterilized by boiling, is passed into the sigmoid and is attached to a hydrostatic douche, when from 20 to 40 ounces of sulphur water at a temperature of 105 F. pass into the colon at a pressure of two feet, the patient lying first on the

right side, then on the back, and lastly on the left side during the operation. This is repeated, and the ejecta after each douche are carefully examined. A warm immersion bath of sulphur water follows the internal douche and when in this bath a hot douche at a higher temperature plays on the wall of the abdomen under water from a large nozzle with fine perforations, and is chiefly directed over the site of the colon.

14. Method of Staining Deep Colonies.—The plates are made in Petri dishes in the usual manner. Ordinary agar can be used; the method is equally successful with modifications of agar, such as glucose, glycerin and whey agar. With a sterile scalpel cut a square of the desired size around the colony and lift out the slab of agar by inserting a wet chisel under it. Push the slab on to the slide, taking care to include no air bubbles; allow to dry in 37 C. incubator or other hot place, and soak in methylated alcohol for 20 minutes. Next put in 5 per cent. solution of the acetic acid for about 10 minutes to dissolve surface crystals. Wash and dry in incubator until the agar is quite dry, which usually takes about 20 minutes. Pour on scarlet writing fluid and allow to remain on until the deep colonies are well stained. This usually takes from 10 to 20 minutes, according to the thickness of the agar. Pour off and blot the edges and press lightly with soft paper to express any ink that may run under the edges of the slab. Now pour on Loeffler's methylene blue, diluted with an equal volume of distilled water, and tilt the slide well until the ink is discharged from the agar and it turns violet. Decolorize in spirit until the color ceases to come out in a visible cloud; finish dehydration in aniline oil, pass into xylol, and mount in Canada balsam. It will be found that the organisms are stained a deep purple, and the agar medium a very pale green.

Medical Press and Circular, London

July 20

- 16 Displacements of the Uterus. H. R. Andrews.
- 17 Relation of Light Perception to Color Perception. F. W. Edridge-Green.
- 18 Preventive Measures and the Administrative Control of Tuberculosis. H. Scurfield.
- 19 The Permanent Slow Pulse. P. Rostaigue.

The Australasian Medical Gazette, Sydney

June

- 20 Infantile Mortality. A. J. Turner.
- 21 *The Bacterial Content of Ice Cream. B. Bradley.
- 22 Infantile Paralysis. J. M. Gill.
- 23 Recent Investigations on Infantile Paralysis. G. Craig.
- 24 Surgical Treatment of Infantile Paralysis. M. Herz.
- 25 Urethral Fistula. W. A. Verco.
- 26 Diabetes Associated with Disease of the Pancreas. C. T. Ch. deCrespigny.
- 27 *Rectal Serotherapy in Obstinate Gonorrhea. A. G. Salter.
- 28 Diabetes Insipidus and Chronic Hydrocephalus. P. T. S. Cherry.

21. Bacterial Content of Ice Cream.—The 28 specimens of ice creams and ices examined by Bradley in the majority of cases disclosed gross contamination with organisms of fecal origin and cocci of the pus-forming type, not with simple air-borne organisms, indicating that the contamination is most likely: (1) from milk used; (2) from dirty receptacles; (3) from handling. In 6 quantitative examinations the organisms growing in 12 hours at 37 C. exceeded 30 millions per c.c. in 3 cases. In one case there were over 17 millions, in another 500,000, and in a third the ice was possibly sterile, not 20,000 per c.c. The colon bacilli were present in the typical fecal types, and the numerical distribution of these types was such as one would find in feces.

27. Rectal Serotherapy in Gonorrhea.—This case responded remarkably to rectal serotherapy, after failure with all other usual remedies. Treatment was unsatisfactory as the patient was off and on alcoholic. He had various mixtures and injections, with no improvement; the discharge continued to be profuse, and he got into a miserable state, with incontinence of urine and strangury. Six months after the initial infection Salter began a course of vaccine treatment, the prostatic symptoms cleared up. During the course of this treatment the patient got relief from incontinence, but the discharge was apparently uninfluenced, and remained profuse and purulent. Then Salter injected rectally 10 c.c. polyvalent anti-

streptococcus serum, repeating the dose on the two succeeding days. This was followed by immediate and marked improvement; the discharge ceased entirely for two weeks, but as a slight purulent discharge then reappeared, Salter repeated the rectal injections thrice. After this the purulent discharge cleared up, a little mucus discharge only remaining in the morning.

Australian Medical Journal, Melbourne

June

- 29 *Treatment of Fractures Implicating Joints. R. H. Russell.
- 30 *Spinal Fractures. J. S. Buchanan.
- 31 Recent Fractures of the Extremities. G. C. Rennie.
- 32 Fractured Spine and Injury to the Intestine. C. H. Mollison.
- 33 Radium Treatment of Superficial Lesions. C. E. Dennis.
- 34 Theory of the Graphic Method in Studying Heart Disease. M. C. deGaris.
- 35 Falling Gouty Heart. J. W. Springthorpe.
- 36 The Clinical Polygraph (Modified). E. M. Sweet.
- 37 Leukemia. E. W. J. Ireland.

29. Treatment of Fractures Implicating Joints.—The following precepts are made by Russell:

1. In fracture involving, or in the immediate vicinity of a joint, where there is no gross displacement of the articular surfaces, stiffness of the joint never supervenes, except as the result of passive motion carried out by the surgeon.
2. In fractures involving joints in which there is some displacement or irregularity of the joint surfaces, and in which, therefore, some impairment is inevitable, such stiffness will be greatly aggravated by the employment of passive movement; and complete abstention from passive movement by the surgeon will yield the best results attainable.
3. When great stiffness is present, in spite of the surgeon's efforts to increase the mobility by passive movement, such stiffness will persist so long as the surgeon persists.
4. When the surgeon abandons the case in despair, improvement will at once commence.

Condensing these four laws into one weighty generalization, he says that in fractures involving joints the most potent cause of stiffness is the so-called passive movement performed by the surgeon. Immobilization is never a cause of stiffness. The maximum degree of permanent usefulness is to be obtained by immobilization alone.

30. Simple Fractures.—Buchanan agrees with Russell that in cases of fracture involving joints there are a fairly large number in which early passive movement is not remedial. The methods of Lane and Lucas-Championnière he regards as impracticable, because usually there is no necessity for that of the former nor for that of the latter because its use seems to be fraught with the gravest danger, especially if the movements carried out are not of the mildest character, and directly under the supervision of a skilled person. During the past five years Buchanan cannot recall a single case of marked deformity, ununited fracture or impaired use of the limb in such cases treated by the more ordinary method of manipulation, careful coaptation, assisted by the use of radioscapy, fixation by splints of muscles and joints of the affected limb.

Annales de Gynécologie et d'Obstétrique, Paris

July, XXXVII, No. 7, pp. 385-448

- 38 *Gangrenous Perforation of the Aborting Uterus. G. Fieux.
- 39 *Tubal Pregnancy. (Deux cas rares de grossesse ectopique.) P. Lecène.
- 40 *Tetany During the Puerperium. V. Wallich.
- 41 *Superheated Air in Treatment of Gangrenous Lesions After Delivery. (Emploi de l'aéro-thermo-thérapie dans les plaies gangréneuses succédant à l'accouchement.) R. Dupont.

38. Gangrenous Perforation of the Uterus after Abortion.—The case reported by Fieux shows that a gangrenous process may develop in the aborting uterus solely from partial retention of the placenta and putrefaction of the adherent mass. The gangrene may progress to an eschar entailing perforation as it drops off, and all this may occur without any direct traumatism of the uterine wall. Varnier has reported a similar case. In both the abortion had been induced by an intrauterine injection, the nozzle of the syringe not being long enough to reach into the uterus.

39. Hemorrhagic Extrauterine Pregnancy.—In the first case fecundation dated from only a few days and the tube was permeable, without rupture, the hemorrhage pouring into the peritoneum. The blood oozed for more than two days until the tube was removed. In the second case the ovum settled in a diverticulum in the already inflamed tube.

40. Tetany in the Puerperium.—Wallich's patient developed tetany the seventh day after delivery, on receiving news of

the illness of her child. Pinard has encountered but one similar case in his long practice. Wallich inquires whether others have met with cases of this kind, remarking that it is necessary to restrict so far as possible the disturbances laid to the score of the puerperal condition, as physicians should never lose an occasion to demonstrate that pregnancy, childbirth and lactation are physiologic states for the normal woman and not pathologic.

41. Superheated Air in Treatment of Gangrenous Wounds.—The wounds to which Dupont refers are the obstetrical tears which suppurate and show little tendency to heal. He has obtained excellent results by application of superheated air; the hot douche penetrates into all the infected crevices and destroys the putrefying tissues while inducing a reparative hyperemia in the surrounding tissues. In one of the three cases reported in detail this aërothermotherapy rapidly arrested the gangrenous process in the cervix and the development of the threatening vesicovaginal fistula was checked.

Annales des Maladies des Org. Génito-urinaires, Paris

July 1, XXVIII, No. 13, pp. 1153-1248

- 42 *The Venous Circulation of the Kidney. (Etude sur la circulation veineuse du rein.) E. Papin and Jungano.
- 43 Both Kidneys on Same Side. (Le rein ectopique croisé.) E. Papin and Palazzoli.

42. The Venous Circulation of the Kidney.—In the 28 illustrations accompanying this article the authors show that the venous system in the kidney differs materially from the arterial system, and that the descriptions in the text-books are incorrect in a number of points.

Archives des Maladies du Cœur, etc., Paris

July, III, No. 7, pp. 401-463

- 44 Ectopia of the Heart from Defect in the Sternum. G. Foy.
- 45 Case of Acute Leukemia of Myeloid Type. Rieux, Savy and Courlon.
- 46 Cardiovascular Modifications from Carbonated Baths. (Modifications cardio-vasculaires qui se produisent sous l'influence des bains artificiellement chargés d'après les données de la tachographie.)

Lyon Médical, Lyons

July 10, CXV, No. 28, pp. 1-44

- 47 Advantages of Heliotherapy for Sluggish Healing Wounds and Leg Ulcers. (Héliothérapie dans le traitement des plaies atones et en particulier de l'ulcère variqueux.) Jaubert.
- 48 Radiography of the Fetus in Utero. (Fabre, Barjon and Trillat.

July 17, No. 29, pp. 45-100

- 49 Alopecia of Dental Origin. (A propos de la pelade d'origine dentaire.) P. Jourdanet.

Presse Médicale, Paris

July 20, XVIII, No. 58, pp. 553-560

- 50 Operation for Secondary Strabismus. (La cure chirurgicale du strabisme secondaire: déviation inverse post-opératoire.) A. Terson.

July 23, No. 59, pp. 561-576

- 51 Serotherapy of Snakebite. (Sérothérapie antivenimeuse.) M. Arthus.
- 52 The Seine Freshets Have No Influence on Incidence of Typhoid. J. Bertillon.
- 53 Talipes Equinovarus. (Le pied creux équin.) C. Ducroquet.

Revue de Chirurgie, Paris

July, XXX, No. 7, pp. 1-236

- 54 *Oblique Osteotomy Through the Trochanter in Treatment of Vicious Ankylosis of the Hip-Joint. E. Quénu and P. Mathieu.
- 55 *Umbilical Fistulas Consecutive to Gall-stone Cholecystitis. M. Patel and G. Cotte.
- 56 Torsion and Strangulation of Seroapendices Epiploicæ in Hernial Sacs. L. Kendirdjy and P. Sejournet.
- 57 *Special Form of Pseudocoxalgia Grafted on Characteristic Malformations of the Upper End of the Femur. J. Calvé.
- 58 Mikulicz' Disease. (L'hypertrophie chronique et simultanée des glandes lacrymales et salivaires.) P. Sejournet.
- 59 Lateral Suture of the Portal Vein. P. Hallopeau.

54. Oblique Osteotomy through the Trochanter for Vicious Ankylosis.—Quénu and Mathieu give an illustrated description of 3 patients whose deforming ankylosis of the hip-joint was corrected by sawing the femur from the top of the trochanter oblique to a point low down on the other side. The extreme slant permits the neck part to be slipped up on the shaft, thus lengthening the limb while it leaves the largest possible areas of the stumps in contact after correcting the position of the shaft. For correction of a shortening of 8 cm. the line

of section should be at least 10 cm. long which leaves 2 cm. of the cut surfaces still in close contact, not merely the points alone. The slanting section causes the parts to be pressed together along the entire length of the cut surfaces in contact, the contact being aided by traction from the muscles. The osteotomy must be followed by continuous extension, they state, until the parts have healed. By flexion of the trunk on the thigh, rotation of the femur on the pelvis, after the consolidation has reached a certain point, it is possible to obtain some loosening of the ankylosis, aiding materially in the patient's ability to get about later.

55. Umbilical Gall-Stone Fistula.—In the case reported by Patel and Cotte the fistula developed from a gall-stone forcing its way out through the skin from the inflamed gall-bladder. The patient was a woman of 37 who had borne three children and had had gall-stone colic at times during the last 11 years. She was cured of all disturbances by an operation similar to that for obliteration of an artificial anus.

57. Special Type of Pseudocoxalgia.—In over 500 cases of coxalgia, Calvé has encountered 10 in which a brief subacute arthritis healed without impairment of movement, but a pre-existing deformity of the bone persisted unmodified. The children had coxa vara or hypertrophy, atrophy or deformity of the head of the femur, but there was no destruction of bone tissue at any point. The type does not correspond to any of the known forms of hip-joint disease, and it has generally been mistakenly diagnosed as a tuberculous coxitis. The children begin to be occasionally a little lame and complain of pain in the knee, the movements of the joint are limited and there is some muscular atrophy in the region. After a certain period the pain subsides, with or without extension in the interim, and the children walk normally or with a slight limp. The features of the cases differ entirely from those of dry caries of the hip-joint and deforming juvenile osteoarthritis. In his first cases differentiation was retrospective by examining more attentively the radiographs which had been taken as the children first came under treatment for supposed tuberculous hip-joint disease.

Revue de Gynécologie, Paris

July, XV, No. 1, pp. 1-96

60 *Hemorrhages in the Non-Pregnant Fallopian Tube. (La pachysalpingite hémorragique.) L. Bazy.

60. Hemorrhages in the Non-Gravid Tube.—Bazy's profusely illustrated article is based on 2 cases and on 2 other less typical examples of what he thinks may be described as a hemorrhagic pachysalpingitis. In a fifth case a tubal pregnancy was accompanied by this form of inflammation in the other tube. The rupture of the gravid tube put an end to the pains on this side while the pains in the pachysalpingitic tube persisted unmodified. Differentiation of this hemorrhagic inflammation is practically impossible, he says, before operating.

Revue de Médecine, Paris

July, XXX, No. 7, pp. 529-612

61 *Clinical Study of the Rhythm of the Secretion of Urine and of Diuresis Induced by Ingestion of Water. H. Vaquet and J. Cottet.

62 *Incomplete Form of Pericholecystitis of Gall-stone Origin. P. Londe.

63 Influence of Intoxication from a Substance Inducing Anaphylaxis on Nitrogen Metabolism. P. Lassablère.

64 Action of Vichy Thermal Waters on Arterial Tension. A. Therre.

61. Clinical Study of the Rhythm of the Secretion of Urine and of Diuresis Induced by Ingestion of Water.—Vaquet and Cottet emphasize the importance of not drinking more fluid than the kidney is able to eliminate; in heart and kidney disease the amount should thus be reduced to conform to the eliminating power of the kidneys. This they test by the experimental polyuria test, that is, the diuresis that follows ingestion of over a pint of water, fasting, the patient reclining for nearly two hours afterward. Recumbency materially promotes the diuresis, and they advise having the patients lie down for a couple of hours after the morning draught in all courses of mineral waters. Obese patients lose weight more rapidly with this recumbency to promote diuresis than when they keep up after drinking the water. The rhythm

of secretion of urine is tested by keeping separate the urine voided between 9 p. m. and 7 a. m.; 9 a. m. and 9 p. m. and between 7 a. m. and 9 a. m.; the latter period is that of the experimental polyuria after ingestion of 600 c.c. of mineral water (Evian).

62. Pericholecystitis.—Londe gives the details of 15 cases out of a total of 30 or 40 of a syndrome including a tendency to vomiting, vague abdominal pain and dyspepsia and more or less tenderness in the gall-bladder or stomach region or below. The pain sometimes is referred to the right shoulder as the abdomen is palpated. The main danger from the pericholecystitis is infection of the peritoneum, and operative treatment is justified with a history of some preceding severe attack, or the lingering nature of an apparently mild syndrome. Beware, Londe says, of the cases in which the patient eats and feels well but gradually tends toward cachexia—any discordance between the subjective and objective signs is instructive. The prognosis is less favorable if mild chologogues and alkalines are not borne well, as in chronic appendicitis. Some of the cases reported in detail show the danger of delay in operating when the recurring attacks grow more severe. In one such case, subhepatic peritonitis developed and the patient succumbed to thrombosis. In one case the subfebrile pericholecystitis seemed to flare up anew before the menses each time.

Semaine Médicale, Paris

July 7, XXX, No. 80, pp. 319-360

65 *Hypnotism in Therapeutics and from Medicolegal Standpoint. J. Babinski.

65. Hypnotism from the Therapeutic and Medicolegal Standpoints.—Babinski is inclined to regard hysteria as about half simulation, and hypnotism the same. For example, he says, if a hypnotized individual has suggested to him that the house and stairway are on fire, he may exhibit terror but he will never be so terrified as to jump out of the window. Numbers of hysterical individuals have been cured after they have been hypnotized, he remarks, but psychotherapy waking would have been equally effectual in all, unless the hysterical patients had clamored for the hypnosis. From the medicolegal standpoint he insists that hypnosis does not deprive the subject of will-power to the point of committing a crime which he would not commit under other circumstances. The hypnotized individual is responsible for criminal deeds which he may commit, and even slight attenuation of the responsibility can be admitted only when the individual has been in the habit of being hypnotized frequently so that a special hypersensitiveness may have developed.

Archiv für klinische Chirurgie, Berlin

XCII, No. 3, pp. 597-912. Last indexed Aug. 13, p. 630

66 *Heus and Paralysis of the Intestines. (Ueber Ileus und Darmparalyse, einschliesslich Peritonitis.) H. Thiemann.

67 Experiences with Stoval. (Beitrag zur Lumbalanästhesie mit Stoval.) Michelsson.

68 *Indications for and Mode of Action of Gastroenterostomy. A. Blad.

69 *Plastic Operations on the Face. (Zur Gesichtsplastik.) E. Lexer.

70 *Cancer Metastasis in the Ovaries and in the Cul-de-Sac of Douglas. (Zur Frage der Krebsmetastasen in den Ovarien und im Cavum Douglasii.) J. Rosenstirn.

71 *Prophylactic Plastic Operation for Duodenal Ulcer. (Die omentale Enterokleisis bei acut ulcerativen Processen der letzten Dünndarmschlinge.) S. Soleri.

72 Operative Treatment of Pendulous Breasts. (Ueber Mastopexie und Mastopexie.) C. Girard.

73 Torsion of Great Omentum. (Torsion des grossen Netzes.) S. Hadda.

74 Trephining the Long Bones for Osteosclerosis with Intense Pains. (Trepanation der langen Knochen bei Osteosklerose mit heftigen Schmerzen.) M. Kirschner.

75 Practical Outcome of Free Fascia Transplantation. (Die praktische Ergebnisse der freien Fascia-Transplantation.) M. Kirschner.

66. Lessons from Ten Years of Abdominal Operations.—Thiemann reviews the experiences at the surgical clinic at Jena in charge of Riedel, and emphasizes the following points:

Swallowed foreign bodies very rarely cause ileus. If the foreign body has passed through the esophagus it generally slides along through the bowel without he great danger in the descending part of the duodenum. Perforation by a foreign body is a peculiar tough induration of the vicinity, which may secondarily interfere with the permeability of the bowel.

Cancer of the duodenum causes comparatively slight local symptoms in comparison with the general cachexia. The favorable influence of a simple laparotomy on tuberculous peritonitis is confirmed by the experiences related. The success of operations for correcting atresia of the rectum is often compromised by malformations elsewhere.

In 36 of the 321 cases of incarcerated hernia the trouble was an acute partial enterocoele; the disturbances are so slight while there is so much danger of perforation even with cautious reduction that the mortality is unusually high, 41 per cent. It occurs almost exclusively with femoral hernia, but 3 out of the 4 cases of obturator hernia were partial enterocoeles.

The symptoms with torsion of the appendices epiploicae were extraordinarily severe.

The best measures to sustain the patient after operations are rectal saline infusion and systematic lavage of stomach and bowel. Physostigmin generally fails, and saline-suprarenal extract infusion has only transient effect in peritonitis.

Perforation of a typhoid ulcer is inevitably fatal unless the process becomes walled off by adhesions.

In little girls, the peritonitis set up by diplococci, staphylococci or streptococci has a grave prognosis, contrary to that of gonococcus peritonitis. In 13 cases of this kind, only 2 of the patients were saved. In one case a right crucial incision showed the whole abdomen full of pus, the appendix being apparently normal and the tubes inflamed. After wiping out the abdomen it was completely sutured and the girl, aged 13, recovered after a few days of fever. Infection is by way of the genital tract and it may occur without lesions in the latter.

Symptoms suggesting flueus may develop after pneumonia, pleurisy and pericarditis, but the abdominal findings are negative. An important differential sign in such cases is the good aspect of the tongue.

Chloroform general anesthesia does not seem to affect the course of pneumonia unfavorably.

With acute dilatation of the stomach resisting all other measures, gastroenterostomy is justified.

Postoperative paralysis and dilatation are most effectively combated by early systematic lavage of the stomach.

Saline rectal infusion seems to be the most effectual means to prevent postoperative adhesions but the adhesions developed by the suppurative process are not influenced by it.

All stumps should be covered with peritoneum, and before removing a high rectal cancer, the peritoneum should be shut off above through a left crucial incision.

68. Indications for and Mode of Action of Gastroenterostomy.—A similar article giving Rovsing's views and experience was summarized in *THE JOURNAL*, Jan 15, 1910, page 248.

69. Plastic Operations on the Face.—Lexer's article is accompanied by 35 illustrations showing his technic and the results in various cosmetic operations, formation of a nose or ear, correction of hare-lip or defects left from removal of cancers in the face; in some cases he transplanted part of the scalp to supply a moustache or beard, in others a wedge from the tibia to make a frame for the nose. In some cases he supplied the lacking support for the skin by inserting a flap of adipose tissue from the abdominal wall. The favorable results of this free fat transplantation and of similar experiments on animals promise a future for this method. In the first case it was applied to remedy a deep depression in the cheek and temple left from suppuration after traumatic injury; in the other case to remedy ankylosis and atrophy of the jaws, introducing the round flap of fat through an opening under the chin. This method has been applied since to correct defects in the breast after excision of a benign tumor and for defects in the cheek.

70. Cancer Metastasis in Ovaries and Pouch of Douglas.—Rosenstirn reports 15 cases which emphasize the importance of the attraction of gravity in determining the location of metastatic growths from abdominal cancers. The primary cancer may be still securely enclosed in serosa and yet metastasis by implantation may occur from it. The laws of gravity, he declares, explain why the ovaries are so often involved. Still more often the implantation occurs in the very lowest part of the pouch of Douglas, and it is important to examine this region in all operations for abdominal cancer.

74. Prophylactic Plastic Operation for Acute Ulcerative Intestinal Lesions.—Solieri reports a case of paratyphoid intestinal ulceration in which he wrapped the bowel, just as it was on the point of perforation, in part of the omentum, fastening the omentum to the mesentery just below its attachment to the loop in question. The laparotomy did not affect the patient unfavorably, while the protecting sheath of omentum thus provided for the bowel warded off perforation and peritonitis. He calls the operation "omental enterocoeleisis" (from *kleio*, I surround), and remarks that it is scarcely more serious than an exploratory laparotomy.

Beiträge zur Geburtshilfe und Gynaekologie, Leipzig

XI, No. 3, pp 317-476. Last indexed May 28, p. 1830

- 76 Another Case of Total Isthmic Placenta Praevia. Pankow.
77 Abnormal Development of the Pelvis. (Ueber Entwicklungsstörungen des knöchernen Beckens: Assimilationsbecken und gar. Hunziker.
78 Ca. In Relation to Gynecology and
79 Hypoplasia and Infantilism in Relation to Gynecology and Obstetrics. A. Mayer.
80 Holoacardius abrachius peropus. A. Sitzenfrey.
81 Placental and Congenital Tuberculosis. G. Leuenberger.

77. Abnormal Development of the Pelvis.—Hegar remarks that much can be done in prophylaxis and correction by breast nursing, improving the hygienic conditions of the poor, and physical training of the young. Nature strives to correct disturbances in development by tardy growth late in life. This is observed especially in women under the influence of married life and pregnancy. The uterus and breasts may grow out of an infantile condition late in life; likewise the pelvis at an age when its growth might be considered as definitely arrested, may continue to develop, especially under the influence of pregnancy. This may explain Sellheim's observation that the proportion of women with infantile pelvis grows constantly smaller after the age of 25 to 30.

79. Hypoplasia and Infantilism in Relation to Gynecology and Obstetrics.—Mayer discusses the various manifestations of hypoplasia and infantilism in the genitalia and the clinical importance of these anomalies, especially the light which they throw on physical processes. His article is based on the experiences at the Hegar, von Rosthorn and Sellheim clinics for women's diseases, and is profusely illustrated. Individuals of this type, he says, must be regarded as "unfinished," and the resulting disturbances have special importance from the standpoint of social insurance against invalidity.

Berliner klinische Wochenschrift

July 18, XLVII, No. 29, pp. 1353-1396

- 82 Radioscopic Diagnosis of Gastro-Intestinal Stenosis. (Zur Röntgendiagnostik der Stenosen des Verdauungstraktes.) J. Tornai
83 Cystoscopy with Turbid Urine and Ureter Catheterization with Infected Urine. M. Hoffmann.
84 Determination of Tubercle Bacilli with Lupus Erythematoses. G. Arndt.
85 Complement-Binding Reaction in Leprosy. K. Steffenhagen.
86 Serodiagnosis in Syphilis. (Zur Organisation der Serodiagnostik nach Wassermann.) G. Soberheim.
87 Behavior of Blood Before and After Eating in the Wassermann Reaction. F. Hoehne and R. Kalb.
88 The Wassermann Reaction in Paralytic Dementia. H. Boas and G. Neve.
89 Treatment of Hysterical Aphonia. M. Senator.
90 Action of Quartz Lamp on Trachomatous Conjunctiva. (Wirkungsweise des Quarzlichtes auf die trachomatöse Bindehaut des Auges.) Hegner and G. Baumann.

89. Treatment of Hysterical Loss of the Voice.—Senator relates that his experiences with Seifert's method of treating hysterical aphonia have not been so favorable as those reported by Seifer, but still he found it successful in a number of cases in which no benefit had been obtained from other measures. The patient's head is bent far over backward or the entire upper part of the body is tilted back. In this position the patients find that they are able to speak or intone. Seifert found that he was unable to speak in a whispering tone when his head was bent over backward in this way. The upper part of the body must be completely relaxed. In the two cases refractory to this measure in Senator's experience, the aphonia was promptly cured by other measures in the first, and in the other a thickening from chronic laryngitis may have been responsible for the failure. He is inclined to explain the success of the measure in general as due to its moral influence, adding another weapon to the armamentarium at our disposal for effectually influencing hysterical aphonia. The list includes manual pressure on the larynx, electric vibration massage, improvement of the respiration, a deep breath being taken before each single sound, and training the patients to speak in a lower key, the hysterical-aphonic patients generally having had a high-keyed voice.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 1, XL, No. 19, pp. 691-632

- 91 Inflammation the Result of Changes in Permeability of Cell Membrane. (Ueber die Entzündung als kolloidchemisches Problem.) A. Oswald.
92 Bronze Diabetes. E. Bernoulli.

July 10, No. 20, pp. 633-664

93 *Acute Infectious Poliomyelitis. H. Eichhorst.

July 20, No. 21, pp. 665-696

94 *Present Status of Cancer Research. (Ueber den gegenwärtigen Stand der Krebsforschung.) M. O. Wyss. Commenced in No. 20.

92. **Bronze Diabetes.**—Bernoulli gives the clinical and autopsy details of a case of bronze diabetes with intense glycosuria in a man of 38 inclined to hemostasis and headache, with pneumonia three years before. He states that he has found 41 detailed reports of cases of so-called bronze diabetes in the literature, and that in 7 there was no tendency to glycosuria.

93. **Epidemic Poliomyelitis.**—Eichhorst encountered 3 cases last year at Zurich although no epidemic of this disease has ever been known in Switzerland. He mentions that during the last four years an unprecedented number of cases of epidemic cerebrospinal meningitis have been observed at Zurich, from 8 to 23 cases each year at the clinic in his charge. He remarks that epidemic poliomyelitis interests in nearly equal degree the bacteriologists, epidemiologists, internists, neurologists and pediatricists, surgeons and orthopedists, and he applies the great general's appeal to his soldiers: "In scientific things press on alone, if necessary, but in attacking epidemics strike all together."

94. **Cancer Research.**—Wyss concludes his review of the present status of cancer research with the statement that the main thing now is to collect extensive and uniform statistics for comparison. He thinks that cancers should be classed not according to the tissues in which they are formed but according to their localization and origin. For this he proposes four classes:

1. **Involution carcinomas:** This includes cancer of the uterus, ovaries and breast, that is, organs of reproduction which regularly retrogress, aging according to certain early time limitations.

2. **Intestinal carcinomas:** This includes carcinomas of the alimentary canal, the organs which are most affected by the mode of life, the food and habits, and which are most subject to repeated mild infections.

3. **Irritation carcinomas:** This includes the cancers developing from repeated mechanical irritations, especially those of the tongue, lips and skin, larynx and biliary passages.

4. **Carcinomas of all other origin or which cannot be grouped with the above,** as those in thyroid, pancreas and lungs.

To illustrate the advantages of this classification, he gives a chart showing the prevalence of these various groups in several Swiss provinces during the last eighteen years. The chart shows that the involution cancers are most frequent in the provinces containing the larger cities, while the intestinal cancers and especially gastric cancer are responsible for the larger numbers of cancers in the provinces where cancer is most prevalent, Schwyz and Lucerne.

Deutsche medizinische Wochenschrift, Berlin

July 21, XXXVI, No. 29, pp. 1353-1392

95 *Diagnosis and Treatment of Cardiac and Vascular Neuroses. (Herz- und Gefässneurosen.) T. Rumpf.

96 *Experimental Study of Treatment of Malignant Tumors. K. Reicher. Commenced in No. 28.

97 *Myogenous Leukocytosis. E. Grawitz.

98 *Chloroform Addiction. (Habituelles Chloroformmissbrauch.) Storath.

99 Case of Nodular Rheumatism. O. Thorspecken.

100 Tincture-of-Iodin Sterilization of Field of Operation. (Desinfektion des Operationsgebietes mit Jodtinktur.) K. Streitberger.

101 *Technic for Macerating, Enriching and Staining Spermatozoa in Old Spots of Semen. (Ein neues Mazerations- resp. Anreicherungs- und Färbeverfahren zur Auffindung der Spermatozoen in alten Spermaflecken.) D. Gasis.

102 Acute Otitis Media with Abscess Around the Sinus and Abducent Paralysis. R. Lehmann.

103 Moving Roentgen-Ray Pictures of Internal Organs. (Ueber Röntgenkinematographie—Bioröntgenographie innerer Organe des Menschen.) A. Wertheimer.

95. **Cardiovascular Neuroses.**—After reviewing the differential points Rumpf discusses treatment, emphasizing the necessity for discontinuing tobacco—he has several times, he says, witnessed an acute toxic action on the pulse from a single strong cigar. He also refers to helminths as liable to induce an acute cardiovascular syndrome. Repose is an important factor in treatment, especially an out-of-door rest cure when combined with systematic deep breathing to exercise the diaphragm. He tells the patient to place his hands lightly on the stomach and breathe so that during inspiration the abdomen bulges in front and downward. This relieves the

heart materially as the compression of the abdominal contents forces blood and lymph into the thorax, and, as the diaphragm rises, the blood is further forced along in the chest veins. As the pericardium is adherent to the diaphragm, it is drawn down with the latter, stretching the heart lengthwise, and counteracting the widening influence of ordinary breathing. Long-continued, moderately deep, abdominal breathing sometimes permanently retarded the heart rate. The unusually rapid heart action in certain bicyclists may be traced to the lack of abdominal breathing. When the patient has been trained to abdominal breathing, gymnastic exercises can be cautiously commenced but the bending forward or twisting of the trunk must occur during an inspiration, and expiration accompany the raising of the trunk erect. Done in this way the exercises do not accelerate the pulse. All the exercises must be done with abdominal breathing. Massage and rhythmic compression of the abdomen and of the lower thorax are also useful to promote the circulation in the abdomen and with threatening collapse and edema of the lungs. Persons of sedentary habits are liable to do irreparable harm to their heart by over-exercise on vacations; especially the elderly should be warned against rowing, fencing and mountain climbing. The family physician should emphasize the necessity of prophylactic moderate physical exercise which is too often crowded out of the modern strenuous life. Rumpf warns against prescribing spa treatment for functional disturbances, as association with individuals with organic disease is liable to have an unfavorable influence. Mild hydrotherapy can be applied at home; the best measures are those which divert attention from the heart. The suggestive influence of the physician is of paramount importance in those cases in which a mild organic affection is accompanied by severe functional disturbances. A wise wife, Rumpf adds, can protect her husband in these cases against many annoyances and excitements, but what a world of superfluous annoyances a fool of a wife can load on her husband! The choice of reading matter is another element that may favor or hinder a cure.

96. **Experimental Treatment of Cancer.**—Reicher states that the active principle of the suprarenals injected around an experimental tumor on mice almost invariably led to its subsidence. From 5 to 13 injections accomplished this in rats and the results observed, he declares, encourage a trial in suitable clinical cases.

97. **Myogenous Leukocytosis.**—Grawitz examined the capillary blood and the blood from the ulnar vein before and after muscular effort and found in both a marked leukocytosis following the exertion. The leukocytes jumped from 4,400 to 11,200 or 7,500 to 11,700 in a few minutes. The increase cannot, he says, be ascribed to different distribution of the corpuscles. There is pronounced lymphocytosis at first but neutrophile leukocytes soon predominate.

98. **Habitual Use of Chloroform.**—A woman of 51 inhaled from 40 to 60 gm. of alcoholized chloroform (equal parts) almost daily for 15 years, but no signs of a cumulative action were apparent and there were no symptoms on suspension of the chloroform. She acquired the habit from a medical prescription of the preparation to apply locally to the face to relieve severe migraine.

101. **Improved Technic for Forensic Examination of Old Spots of Seminal Fluid.**—Gasis loosens up the spermatozoa with a 1 to 1,000 solution of corrosive sublimate, then stains with 1 per cent. solution of eosin and decolors with a 1 per cent. solution of potassium iodid.

Jahrbuch für Kinderheilkunde, Berlin

July, LXX, No. 1, pp. 1-120

104 *Simultaneous Lime, Phosphorus and Cod-Liver Oil Treatment of Rachitis. (Die gleichzeitige Verabreichung von Phosphorlebertran mit einem Kalksalze bei Rachitis.) J. A. Schabad.

105 Fate of the Fat in Infants' Intestines. (Das Schicksal des Fettes im Darm des Säuglings unter normalen und pathologischen Verhältnissen.) S. Csukl.

106 Chloroma. (Chloroleukämie, Chloroleukosarkomatose.) H. Lehdorff.

107 Hernia of the Diaphragm. (Ueber den Zwerchfellbruch im Anschluss an zwei Fälle.) Z. v. Bokay.

108 *Symmetrical Gangrene in an Infant. (Raynaudsche Krankheit beim Säugling.) C. Beck.

104. **Lime Salts, Phosphorus and Cod Liver Oil in Rachitis.**—Schabad writes from the pediatric clinic and laboratory of the Peter-Paul hospital at St. Petersburg to reiterate his former statements in regard to the efficacy of a combination of phosphorus and cod-liver oil in rachitis, and that calcium acetate has a remarkable effect in favoring retention of lime in connection with the phosphorus and cod liver oil. None of the other lime salts he tested seems to have this property, he states, the phosphate and citrate being all eliminated. His work is based on minute research on the metabolism and he tabulates the findings in one of the typical cases examined over a long period.

103. **Symmetrical Gangrene in an Infant.**—In the case reported by Beck, the first child of healthy parents was apparently healthy until nearly five months old, when the mother noticed recurring capillary congestion and bluish discoloration of the hands, feet and ears. In the course of six weeks the cyanosis recurred every day, gradually becoming almost continuous and gangrene developed. The child died in a month with signs of heart weakness and serious atrophy and beginning gangrene of the left hand. The only pathologic findings at autopsy were patches of thickening of the intima of all the arteries of the extremities and in some of the veins on the arms, while the brain and spinal cord were apparently normal.

Medizinische Klinik, Berlin

July 24, VI, No. 30, pp. 1163-1204

- 109 *Progress in Abdominal Surgery. (Fortschritte der Magen- und
Darmchirurgie.) L. Moszkowicz.
110 *Idiosyncrasy to Cow's Milk in Infants. (Kuhmilchallergien-
krankheit bei Säuglingen.) F. Zybelle.
111 Compression in Treatment of Phlebitis. (Neue Therapie der
Phlebitis.) H. Fischer.
112 Elasto-Massage. (Eine neue Massagemethode.) A. Schöne.
113 *Treatment of Hemoptysis. (Unzweckmässiges und Zweck-
mässiges bei Behandlung von Lungenblutungen der
Phthisiker.) K. Büchel. Commenced in No. 29.
114 Intestinal Hemorrhage in Appendicitis. (Ueber Darmblutung
bei Epityphlitis.) C. A. Ewald.
115 Action of . . . reduction. (Einwirkung
des . . . K. Häberlin.
116 Analysis of . . . tion to Electric Tests.
(Die . . . förmige Muskelzuckung,
bel . . . yse und eine einfache
Art der graphischen Darstellung zu Vorweltsungszwecken.)
A. Martin.
117 Tests for Pentosuria. (Nachweis der Pentosen im Harn.) A.
Jolles.

109. Progress of Abdominal Surgery.—Moszkowicz concludes his review of the present status of abdominal surgery by appealing to general practitioners to diagnose high rectal cancers earlier. If in every case of rectal hemorrhage of obscure cause and negative findings with digital examination, the region was examined with the proctoscope it might be possible to detect high rectal cancers in an earlier stage. At present they are mostly in an inoperable phase when the surgeon first sees them. He urges the practitioner to call in a surgeon to aid in the diagnosis in every case of an obscure gastric or intestinal affection.

110. Idiosyncrasy to Cow's Milk in Infants.—Zybell has found on record 23 cases of an actual idiosyncrasy to cow's milk and adds 3 cases to the list from his personal experience. In one of Finkelstein's cases the resulting disturbances proved fatal, but in all the others the symptoms subsided on suspension of the cow's milk and feeding with small amounts of breast milk generally drawn and given to the infants with a spoon. The idiosyncrasy became manifest as the child, who had been fed at one time with cow's milk and then had been breast fed, was given cow's milk anew. In 5 cases, however, the idiosyncrasy was manifested at the first trial of cow's milk. This fact Zybell regards as sustaining the assumption that the idiosyncrasy is the result of some constitutional anomaly. This assumption is sustained further by the fact that several members of the same family or different generations may display the tendency. Even an hour or two after taking the cow's milk the temperature may run up to 104 F. and over; it may subside again as rapidly as it rose or it may persist for days at this height. In Finkelstein's fatal case the fever kept up for 9 days terminating at 106 F. Along with the fever the child looks collapsed, the skin is pale and cool or eva-

notice, the respiration shallow and rapid, the whole impression being that the child is very ill. This extreme collapse suggests intoxication, but as a rule the threatening symptoms subside after a few hours. Gastrointestinal disturbances were noted in nearly every case and in 2 cases an eruption occurred during or directly after the milk feeding. The infants ranged from 9 to 42 weeks old. In weaning, only minute doses of cow's milk should be given at first to avoid being surprised by the discovery of an unsuspected idiosyncrasy to cow's milk, the manifestations of which may put the child's very life in jeopardy. The idiosyncrasy was finally conquered in all but one case by cautious administration of very small amounts of milk, the exception being a girl, now 15, who is still unable to take even the smallest amount of milk. In all the other cases the idiosyncrasy seemed to disappear as abruptly as it had developed, so that a few days later the children were taking rapidly increasing amounts of milk without the least inconvenience.

113. Treatment of Hemoptysis.—Blümel concludes his discussion of treatment of hemoptysis with the statement that salt is the most reliable means at our command for controlling hemoptysis. It overthrows the existing osmotic balance and fluids then pour from the tissues into the excessively salty blood, bringing with them the thrombokinase, the substance which promotes coagulation in the blood. It has been found that 10 minutes after ingestion of 10 gm. of salt by the mouth the coagulation time was reduced from $3\frac{3}{4}$ to $1\frac{1}{2}$ minutes and to 1 minute after another 10 minutes. This hemostyptic action of sodium chlorid has been utilized by von den Velden in several hundred cases of inaccessible hemorrhage, hemoptysis, gastro-intestinal hemorrhage, etc., and the results were invariably equally good, as also in Blümel's and Reiche's experience. Blümel advises the physician called to a case of hemoptysis to insist on physical and psychic repose, the patient reclining in bed with the shoulders raised to promote expectoration. He must not be allowed to speak or to make any hasty movement and must remain in bed for several days after the sputum has ceased to show traces of blood. If the calm soothing words of the physician are not sufficient to tranquilize the patient, an ice bag should be applied to the heart or 30 grains of sodium or potassium bromid should be given. The ice bag helps to keep the patient still, if it does no other good, but it is not needed, of course, in every case. The application of adhesive plaster to immobilize the lung generally wearies and excites the patient unnecessarily. To check the cough if there is not much expectoration he gives about 3 grains of Dover's powder, if the patient is unable to control the cough himself, or some other sedative, repeating the dose at night, but never giving a sedative early in the morning as expectoration should be favored at this time. The temperature must be taken six times a day and the sputum collected to show to the physician. The food need not be changed if gas-generating and very cold substances are avoided. The room must be kept moderately cool and frequently aired. If the hemorrhage still persists when the physician arrives, he should give at once a heaping teaspoonful of salt in half a glass of water, and if the hemorrhage recurs or threatens, repeat the dose, alternating it with 45 grains of sodium or potassium bromid at intervals of $1\frac{1}{2}$ or 3 hours, as required. If the hemorrhage is very profuse, the limbs may be ligated as an adjuvant—handkerchiefs answer the purpose but the constriction must not be too tight; the aim is to permit the arterial blood to flow into the limb. The greatest care must be exercised in undoing the ligature. If conditions are particularly threatening he advises an intravenous injection of 5 c.c. (81 minims) of a sterile 10 per cent. salt solution. A single dose of horse serum may be used also in these circumstances but it should not be repeated. The coagulating power of the blood may also be promoted, he adds, by a single subcutaneous injection of a sterile 10 per cent. solution of gelatin, repeated as needed. Ingestion of 5 gm. calcium lactate in 50 c.c. water, this dose repeated in 5 or 6 hours, may also be advised. If the patient is suffocating from clots in the throat they should be removed, artificial respiration applied or an emetic administered. Saline

infusion is contraindicated so long as the hemorrhage continues. The physician must never forget that the hemoptysis is merely a symptom and the cause must be sought. Blümel also adds a word of warning against the use of scopolamin and morphin as they have a paralyzing action on the reflexes so that suffocation is liable to ensue, to say nothing of the aspiration pneumonia that may follow.

Münchener medizinische Wochenschrift

July 19, LVII, No. 29, pp. 1529-1576

- 118 *Roentgen Rays in Treatment of Uterine Hemorrhage and Myomas. (Wie weit wird durch die Röntgenbehandlung unsere operative Therapie bei Uterusblutungen und Myomen beeinflusst?) B. Krönig.
- 119 Behavior in Human Body of Ehrlich's "606." (Verhalten des Ehrlich-Hataschen Präparates im menschlichen Körper.) P. Fischer and J. Hoppe.
- 120 Relations Between Potassium Iodid and the Seroreaction. (Welche Beziehungen bestehen zwischen Jod und dem Ausfall der Seroreaktion?) G. Stimpke.
- 121 *Study of Raynaud's Disease. II. v. Hoesslin.
- 122 Plethysmographic Research During Physical Exercise. P. G. Geissler and Zybüll.
- 123 Conservative Treatment of Anthrax on the Face. (Konservative Behandlung der Gesichtsfurunkel.) L. Wrede.
- 124 Traumatic Neuroses Following Railroad Accident. (Nervöse Nachkrankheiten des Mülheimer Eisenbahnunglücks.) T. Becker.
- 125 The "Thread Reaction" in Diagnosis of Typhoid. (Die serodiagnostische Typhusreaktion von Mandelbaum.) A. Kessler.
- 126 Köhler's Bone Disease. (Die Köhlersche Knochenerkrankung.) K. Schäffer.
- 127 *Suprarenal Treatment of Osteomalacia. (Adrenalin und Osteomalazie.) Kownatzki.
- 128 Arrangement for Carrying Wounded in Railroad Cars. (Ein neues System zum Transport von Verwundeten auf den Eisenbahnen.) Waller.
- 129 Gonorrheal Corneal Ulcer. (Gonorrhoeische Hornhautgeschwür.) C. Adam.

118. Roentgen Ray Treatment of Uterine Hemorrhage and Myoma.—Krönig and Gauss report 505 cases with operative treatment and 63 with treatment by the Roentgen rays and state that increasing experience is convincing them of the value of the latter in these gynecologic cases. Radiotherapy is definitely restricting the indications for operative treatment with myoma and hemorrhagic uterine trouble. It is especially indicated in cases of much debility, degeneration of the heart, obesity or bronchial catarrh. Operative treatment has still a mortality of from 4 to 6 per cent., which is altogether too high in the absence of vital indications. Excluding the above class of cases, radical treatment would have only 1 or 2 per cent. mortality, and this deserves the preference as a rule for the stronger patients because it is comparatively harmless for them and because the after-effects—if the ovaries are left—are decidedly less than with amenorrhea brought on by Roentgen-ray exposures. Necessity for rapid restoration of working capacity also compels operative treatment in many cases, so that radiotherapy will generally have to be reserved for well-to-do patients, but he who has beheld the brilliant effects of Roentgen-ray treatment in his own practice will certainly prefer it, they declare, in the suitable cases.

121. Raynaud's Disease.—In one of the two cases reported by von Hoesslin the vascular spasm involved, besides the extremities, the nose, chin and tongue. The trouble was ascribed to a severe chill which had been followed by rheumatic pains in the joints and swellings of the fingers and toes. The pains fluctuated in intensity and the tips of the fingers and toes varied from pallor to cyanosis. The involvement of the tongue permitted a number of interesting physiologic tests. In the second case the local symmetrical disturbances came on after an attack of influenza followed by a nodose arthritis; rheumatic pains were the first symptoms also in this case. The intense pallor in the face and hands first came on suddenly in consequence of fright from a lightning stroke near by.

127. Suprarenal Treatment of Osteomalacia.—Kownatzki reports a case in which a young woman in the fourth month of pregnancy developed osteomalacia rebellious to the usual measures; there was a slight enlargement of the thyroid. Under a course of suprarenal treatment she gradually recovered and was normally delivered although one thigh was left a little shorter. The question now is to determine in which cases of osteomalacia suprarenal treatment is liable

to prove efficient. It seems probable that the cases in which benefit may be anticipated are those in which the trouble is due to suprarenal rather than ovarian insufficiency. There are cases on record in which ovarian treatment proved successful and in certain experiments on animals thyroid treatment gave good results.

Therapeutische Monatshefte, Berlin

July, XXIV, No. 7, pp. 337-404

- 130 *Chronic Gastrosuccorhea. F. Schilling.
- 131 *Treatment of Congenital Syphilis with Special Regard to the Wassermann Reaction. L. Halberstaedter and A. Reiche.
- 132 Treatment of Gonorrhea. (Zur Balsamtherapie der Blennorrhoe.) C. Cronquist.
- 133 Treatment of Alimentary Disturbances in Infants. (Zur Behandlung des Milchnährschadens.) F. Brandenburg.
- 134 Measures to Prevent the Spread of Venereal Disease in Austria. (Bekämpfung der Geschlechtskrankheiten in Oesterreich.) L. Sofer.
- 135 Pancreatic Dextrosuria. C. W. Scherk.
- 136 Historical Sketch of Adulteration of Certain Organic Remedies. (Historisches über die Fälschung einiger animalischer Heilmittel.) W. Fischer-Defoy.

130. Chronic Continuous Excessive Secretion of Gastric Juice.—Schilling lays great stress in treatment on dietetic measures to refrain from stimulating the secretion, especially by abstention from salt. The beneficial influence of a salt-poor diet on the discomfort from hyperchlorhydria has been recently emphasized by Enriquez and Ambard. Rest is an important aid also for patients with engrossing occupations and who are growing thin. Milk gruels, chocolate, butter, cream, oil, toast and zwieback are the main reliance at first in treatment, supplemented later with cheese and soft eggs; meat is entirely prohibited and no salt allowed except a little for the gruels. In the third week a little pea or bean soup is permitted; tender mashed vegetables aid in satisfying hunger. All sweets are to be avoided as also raw fruit and coarse vegetables, alcohol, tea, coffee and tobacco. The patients take a hot bath twice a week. By the second month a little boiled white meat and fish is allowed and by the third month boiled beef, macaroni and marmalade. Roast meats and raw fruit must still be avoided for weeks after this. If the improvement is only moderate on this diet he repeats the course of dieting again after a six-week's interval. It is important to have the patient rest for a time after the noonday meal, and a daily walk should be ordered for brain-workers. These and other measures to tone up the nervous system are supplemented by a mixture of equal parts of silver nitrate and belladonna extract, 0.15, 0.2 or 0.25 gm. in 150 gm. water, taking half a tablespoonful in half a wineglassful of water three times a day before eating. A bottle of this lasts a week, and the first week the mildest strength is taken, two bottles of the second strength follow, and then two or three bottles of the strongest mixture, then reducing the strengths progressively backward in the same way, the whole medicinal course thus requiring 8 to 9 weeks. After completion of the dietetic and medicinal course he sends the patient away for a brief change of air. Treatment along these lines has not been entirely successful in every case but the results have always been encouraging. The symptoms subsided and the patients slept and felt well. If there was retention from the preceding day along with the hypersecretion, he relieved the patients by lavage of the stomach at bedtime, allowing a tranquil night or the nocturnal pains might be relieved by eggs, chocolate and milk. The flow of gastric juice might be checked by 2 or 3 tablespoonfuls of melted butter or oil morning and evening.

131. Treatment of Inherited Syphilis.—Halberstaedter and Reiche relate their experiences with 43 children with inherited syphilis tested for the Wassermann reaction before and after each course of specific treatment. The children were in a special asylum and constantly under observation. The experiences with the Wassermann reaction were similar to those observed in the tertiary phase of syphilis in adults, the reaction persisting positive with great tenacity. A negative reaction frequently became positive again without apparent reason. The children given systematic specific treatment have thriven and developed well and are free from symptoms even although the Wassermann reaction continues positive.

Therapie der Gegenwart, Berlin

July, LI, No. 7, pp. 289-336

- 137 *Treatment of Diabetes in Children. M. Lauritzen.
 138 *Tablet Crises Consisting of Unconsciousness and Arrest of Respiration. (Krisenartige auftretende Bewusstlosigkeit mit Atemstillstand bei Tabes.) L. Jacobsohn.
 139 Taste and Palatability in Hygiene and in the Kitchen. (Geschmack und Schmackhaftigkeit in der Hygiene und in der Küche.) W. Sternberg.
 140 *Treatment of Whooping Cough. (Zur Therapie des Keuchhustens.) G. Bradt.
 141 Importance of Roentgen Rays in Gynecology. (Bedeutung der Röntgenstrahlen in der Gynäkologie.) M. Fraenkel.

137. **Diabetes in Children.**—Lauritzen reviews his experiences with 27 cases of diabetes mellitus in children; an inherited taint was evident in 7, but no indications of pancreatic disease or trauma affecting the brain were discoverable in any instance. Next in importance to the regulation of the diet, he declares, is the necessity for mental and physical rest, reducing tissue waste as much as possible; massage should be given while the child stays in bed, and for this and other reasons, he considers institutional treatment indispensable for diabetes in a child, even in the mild forms. The aim should be to relieve not only the organs in charge of sugar metabolism of all unnecessary work but also all the cells. He insists on the importance of recognizing an incipient tendency to diabetes in children and that the children in families inclined to metabolic disturbances, gout, etc., and children with acne, boils, eczema and other skin diseases should be supervised with special care in this respect, examining their urine frequently. If any reducing substances are found in the urine, a test meal of rice, fish, potato and bread should be given and the urine for the following four hours collected and analyzed. If the glycosuria increases, dietetic restrictions should be enforced at once. Only when the diabetes is detected in its earliest phase can material improvement or a cure be anticipated. Diabetes in children under 2 generally runs a rapidly fatal course. In the mild cases it is important not to jeopardize all with too early resumption of a mixed diet. In the mild and moderately severe cases the patients should return to the hospital four times a year for revision of the assimilating capacity and degree of production of diacetic acid and acetone and have the diet regulated anew accordingly. In the severe cases not until the urine has been made alkaline or is still only slightly acid under large prophylactic doses of sodium bicarbonate is it safe to inaugurate the strict antidiabetic diet. If the glycosuria persists he keeps the child in bed and occasionally allows nothing but water for a day. He accepts the beneficial and apparently specific action of oatmeal in diabetes and makes much use of it, but he always precedes the oatmeal days with a strict albumin-poor diet for a few days, then an exclusively vegetable day, then the oatmeal for a few days, then two or three vegetable days, and then the strict albumin-poor diet again, although in the severer cases the resumption of the stricter diet must be very cautious as otherwise the acidosis may suddenly increase and coma follow. He gives the tabulated details of several cases to show the great benefit that may be derived from treatment on these principles, generally following von Noorden's technique. Eight of the children are still living, including a girl of 8 with intense acidosis when first examined a year ago. The duration of the disease was from 2 months to 4 years in the others. He emphasizes the fact that the total acidity and ammonia content of the urine parallel each other and are a useful index of the daily fluctuations of the acidosis. He classifies the cases as mild when the sugar rapidly disappears on a diet poor in carbohydrates, and moderately severe when the sugar does not disappear unless the diet contains so little albumin that there is only from 7 to 13 gm. of nitrogen in the urine. The proportion of albumin allowed in the diet should be that with which the urine is kept free from sugar, and the amount of food should be kept down to what is actually required.

138. **The Sudden Appearance of Apnea with Unconsciousness in Tabes.**—Jacobsohn reports a case which he says is similar to those reported by Hoover in THE JOURNAL, July 20, 1907, page 237. In all the cases on record of this suddenly appearing apnea with a semicomatose state the patients had

tabes, with a single exception, and in nearly every instance the attack followed administration of morphin or heroin as in his case. He accepts a temporary paralysis of the respiratory center as the cause of the trouble, and thinks that there is ground for nominating the morphin as a factor in the process. Pal regards the phenomenon as similar in its nature to intermittent claudication. Jacobsohn's patient is a tabetic woman of 46 who has been under observation for a year and a half and several of these respiratory attacks have occurred in its presence; they seemed sometimes to take the place of abdominal crises. In one attack a gastric crisis was followed at once by unconsciousness for 45 minutes, and during this time the respiration stopped ten times for from 60 to 80 seconds at a time. One day there were two attacks lasting 4 minutes each, followed the next day by unconsciousness for several hours with frequent pauses in breathing lasting from 2 to 4 minutes. The heart and pulse rate were not modified during the attack, the heart working powerfully as usual. As a rule cyanosis became evident about the end of the second minute, in another minute there was clonic twitching in the legs, then the respiration started up again full and deep and the patient regained consciousness.

140. **Treatment of Whooping Cough.**—Bradt ascribes the symptoms of whooping cough to a local process in the upper air passages and declares that local treatment of the nasopharynx is frequently able to arrest the syndrome. He uses a mixture of iodine and phenol 0.5 parts, with 1.5 parts potassium iodide and 15 parts glycerin in 100 parts water; with this he swabs the nasopharynx for 2 or 3 seconds once a day. This local treatment is supplemented by keeping the child in out door air as much as possible.

Wiener klinische Wochenschrift, Vienna

July 21, XVIII, No. 29, pp. 1065-1093

- 142 *Variations in Sugar Content of Cerebrospinal Fluid with Psychic Disturbances. (Schwankungen im Zuckergehalt des Liquor cerebrospinalis bei psychischen Erkrankungen.) L. Hess and O. Pötzl.
 143 Vulvo-Vaginal Hematomas. J. Reich.
 144 Influence of Alcohol on Syphilitic Serum in the Wassermann Reaction. (Einfluss des Alkohols auf wasserige Sera bei der Komplementbindungsreaktion.) G. Satta and A. Donati.
 145 Etiology of Psoriasis. J. Sells.
 146 The Newer Methods of Enrichment and Staining of the Tubercle Bacilli. (Einige neuere Methoden der Anreicherung und Färbung des Tuberkelbazillus.) H. Trunk.
 147 *The Ronchese-Malfatti Test for Ammonia in Diabetic Urine. (Zur Beurteilung der Azidosis auf Grund eines einfachen Verfahrens der Ammoniakbestimmung im Harn der Diabetiker.) E. Marcovici.

142. **Sugar Content of the Cerebrospinal Fluid in the Insane.**—Hess and Pötzl report 16 cases of mental disease in which the proportion of sugar in the cerebrospinal fluid fluctuated within wide limits, sometimes in the same patient at different times. These fluctuations were noted in cases in which there was nothing to suggest an inflammatory process. The list included cases of dementia praecox and epilepsy.

147. **Test for Ammonia in the Urine as Index of Diabetic Acidosis.**—Marcovici gives the details of the simple Ronchese test based on the action of formalin on the ammonia salts. A 10 per cent. solution of sodium carbonate is added, a drop at a time, to the urine until the reaction becomes neutral. The formalin (40 per cent.) is neutralized with a one-fourth normal soda solution against phenolphthalein until a slight pink tint develops. Then 25 c.c. of the neutral urine and 10 c.c. of the neutral formalin are mixed and titrated against decinormal soda solution until a deep pink develops. The calculation is simple: 1 c.c. of the decinormal soda solution for 100 c.c. of urine corresponds to 0.017 gm. ammonia in 1,000 c.c. of urine.

Zentralblatt für Chirurgie, Leipzig

July 21, XXXVII, No. 30, pp. 977-1008

- 148 *Spengler's I. K. in Surgical Tuberculosis. A. Exner and R. Lenk.

148. **Inefficiency of Spengler's I. K. in Surgical Tuberculosis.**—This communication from the university clinic at Vienna in charge of Hocheneegg reports the application of I. K. in a number of cases of surgical tuberculosis with disappointing results. In 6 of the cases more than 6 months has elapsed since this treatment was commenced and the influence seemed to be rather deleterious. One woman with tuber-

culous peritonitis and enteritis, with slight fever, died from miliary tuberculosis 2 months after commencing the I. K. treatment. In a case of bilateral tuberculosis of the testicles and slight apical lesions, the lesions in the testicles seemed to show improvement under the I. K. at first, but the apical lesions progressed to florid phthisis and the patient succumbed 8 months after the beginning of the five-months course of treatment. In none of the other cases was any appreciable influence from the treatment discoverable and the use of I. K. has been abandoned.

Zentralblatt für Gynäkologie, Leipsic

July 16, XXXIV, No. 29, pp. 977-1008

- 149 Case of Mistaken Sex: External Masculine Pseudohermaphroditism. (Fall von Erreur de sexe.) W. Redlich.
150 Technic for Dilatation of Cervix with Laminaria. K. Czerwenka.

July 23, No. 30, pp. 1009-1040

- 151 *Acute Peritonitis Presumably Originating in the Genitalia. G. Pallin.
152 *Systematic Tampon Drainage of Small Pelvis in Prevention of Postoperative Peritonitis. E. Schürmann.

151. Acute Peritonitis of Non-Puerperal Genital Origin.—Pallin is convinced that it is more than a mere coincidence that only one patient was a man out of his 7 patients with peritonitis of obscure origin during the last 5 years. In 4 of the women the symptoms developed with a menstrual period and the fifth had not commenced menstruating again after a childbirth. Pathologic changes in the adnexa were evident in only 2 of the women; the appendix was apparently sound in all. Nützel found a gynecologic origin in 43 out of 241 patients operated on for peritonitis, and Hagen has reported 3 fatalities in a group of 7 of gynecologic origin. He emphasizes the grave prognosis and the injurious influence of menstruation. From these and other data Pallin concludes that acute peritonitis may develop from the female genitalia alone, and that the infection may reach the peritoneum through the tube without causing inflammation on the way.

152. Systematic Tamponing of Small Pelvis to Prevent Peritonitis.—Schürmann declares that postoperative peritonitis is far too common and that more vigorous measures are needed against it. The main source of trouble, he is convinced, is the actual contact of the intestines with the oozing pus in the operative area. A small strip of gauze laid over the suture is pushed along by the intestines as they slide back into place after a laparotomy; this leaves the suture bare so that intestines and peritoneum rest against it and become infected. In order to prevent this he systematically packs the entire small pelvis full of gauze before lowering the pelvis after the operation. Then when the intestines slide down they rest on the gauze and are saved from infection. Any infectious process developing in the operative area remains localized here. In case the whole pelvis has been contaminated, he supplements this tamponing by tamponing through the abdominal incision, packing the pelvis with gauze so amply that the intestines are not able to slide down into the small pelvis at all. Ordinary drains are unable to convey all the secretions away; even with the best gauze drainage pus was found still clinging to the suture whenever he was obliged to open the abdomen again for any reason. It was formerly believed that the great absorbing power of the peritoneum was able to protect it against the spread of infection, but recent research has failed to disclose bacteria in the circulation, such as would be found if the peritoneum absorbed them as assumed. On the other hand, the lymphatics in the peritoneum have been found clogged with a copious cellular and fibrinous exudation, and this is now regarded as the natural defensive mechanism. This walling off is realized further by the adhesions induced by the mechanical irritation from the gauze tamponing, besides the direct protection afforded by the gauze itself. He does not use medicated gauze exclusively, on account of the danger of intoxication.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 17, XXXI, No. 85, pp. 889-904

- 153 Presence and Determination of Tuberculous Sensitizers in Extracts of Human Scrofulous Glands. (Sensibilizzatrici tubercolari negli estratti di ghiandole linfathe scrofolose umane.) S. Liviero.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

DIE HAUPTGRUNDGESETZE DER EPIDEMIOLOGISCHEN TYPHUS- UND CHOLERA-FORSCHUNG. In Rücksicht auf die Pettenkofersche und die Kochsche Auffassung der Typhus- und Cholera-genese. Auf Grund einer vergleichend-epidemiologischen Betrachtung einer grösseren Reihe von Typhus- und Cholera-epidemien. Dargelegt von Dr. med. Friedrich Wolter in Hamburg. Jubiläumsschrift zum 50 jährigen Gedenken der Begründung der Lokalistischen Lehre Max von Pettenkofers, II. Band. Paper. Price, 24 marks. Pp. 337, with illustrations. Munich: J. F. Lehmann, 1910.

AN INTERNATIONAL SYSTEM OF OPHTHALMIC PRACTICE. Edited by Walter L. Pyle, M.D., Philadelphia, Member of the American Ophthalmological Society. Therapeutics. By Dr. A. Darier, Paris. Translated by Sidney Stephenson, F.R.C.S., London, Late Honorary Secretary of the Ophthalmological Society. Cloth. Price, \$4 net. Pp. 444, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

LEHRBUCH DER KINDERHEILKUNDE FÜR AERZTE UND STUDIERENDE. Von Dr. med. Bernhard Bendix, Privatdozent für Kinderheilkunde. Dirigierender Arzt der Charlottenburger Säuglingsklinik. Sechste, Durchgesehene und Verbesserte Auflage. Paper. Price, 15 marks. Pp. 671, with 83 illustrations. Wien: Urban & Schwarzenberg, 1910.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS. Or the Action of Drugs in Health and Disease. By Arthur R. Cushny, M.D., Professor of Pharmacology in the University of London. Fifth Edition. Cloth. Price, \$3.75 net. Pp. 744, with 61 illustrations. Philadelphia: Lea & Febiger, 1910.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Vol. XXII. Twenty-second Session held at Hot Springs, Va., Dec 14, 15 and 16, 1909. Edited by W. D. Haggard, M.D., Secretary, Nashville, Tenn. Cloth. Pp. 561. Published by the Association, 1910.

VII. BERICHT DER DEUTSCHEN GESELLSCHAFT FÜR SAMARITER-UND RETTUNGSWESEN FÜR DIE JAHRE 1908 UND 1909. Herausgegeben vom Vorstand. Paper. Pp. 171. Leipzig: Nikolaikirchhof.

New Patents

Recent patents of interest to physicians:

952903. Charging vessels with carbonated liquid and flavoring-syrup under pressure. John Hicks, Summit, N. J.
953015. Hernial truss. Byron F. Lockwood, Jackson, Mich.
952957. Invalid bed. Walter B. Sterling, Wellsburg, W. Va.
952767. Apparatus for pasteurizing or cooling liquids. Magnus Thomsen, Davenport, Iowa.
952965. Apparatus for making, stamping, and cutting lozenges. John Trenor, Colne, England.
953073. Extracting caffeine from coffee. Heinrich Trillich, Munich, Germany.
953074. Extracting caffeine from whole coffee-beans. Heinrich Trillich, Munich, Germany.
953187. Producing a sulphur compound of quinin. F. W. S. Valentin, Leipzig, Germany.
953901. Dipper for ice cream cones. Albert J. Daniel, Boone, Iowa.
953821. Artificial hand or tool-holding attachment for amputated arms. David W. Dorrance, Portland, Ore.
953945. Vacuum membrane-pump. Martin Falk, Cologne, Germany.
953687. Convertible bed. Michael D. Gavan, St. Louis.
954082. Invalid-bed. Michael D. Gavan, St. Louis.
954083. Massage apparatus. Richard H. Gay, Conesville, Iowa.
953691. Truss. George R. Harding, Utica, N. Y.
953954. Bed-pan. Amanda Jackson, St. Louis.
953962. Device for raising and moving invalids. Charles W. Lane, Fishkill, N. Y.
954398. Double acting syringe. Peter G. MacGregor, New York.
954320. Faucet for soda-fountains. William M. Megget, Greenville, Miss.
953922. Tracheal cannula or tube. John B. Rogers, York, Me.
954005. Orthopedic device. Louis Roth, New York.
954056. X-ray system. Homer C. Snook, Philadelphia.
954494. Drainage tube. George E. Andrews, Philadelphia.
954426. Disinfecting appliance. Max Dreifuss, Cleveland, Ohio.
955121. Apparatus for administering anesthetics. Charles A. Hollett, Indianapolis, Ind.
954519. Intravaginal infantile respirator. Walter E. Kelly, Belvidere, Neb.
954972. Foldable bath-hopper. Burton D. Knickerbocker, Chicago.
954760. Ambulance. Walter von Oettingen, Wilmersdorf, Berlin, Germany.
954474. Confinement chair. Emil C. Schortmann, Bilbao, Spain.
955006. Abdominal retractor. Joseph E. Sparks, Crossett, Ark.
955312. Medicine cabinet. Constantine Bell, Philadelphia.
955454. Condenser and mold for carbon dioxide. William J. Flemming, Richmond Hill, N. Y.
955818. Ozonizer. Anthony Lohman, Philadelphia.
955339. Massage device. John C. Lumsden, New York.
955821. Anesthesia mask. Victor F. Marshall, Appleton, Wis.
955342. Pendant sprayer support. Walter H. Maxwell, Cincinnati.
955481. Pasteurizer. Charles Skidd, Kenosha, Wis.

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A CRITICISM OF THE BLOOD-PRESSURE APPARATUS*

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The sphygmomanometer is generally assumed to be an instrument which enables us to measure the maximum and minimum endovascular arterial pressure. If this assumption is true, it does not follow that we have any data on which to estimate the mass movement of blood, the real problem that remains to be solved in the study of cardiovascular diseases. In subjects with a normal vascular system the blood-pressure apparatus gives us reliable information about the maximum systolic pressure. But in clinical experience it can be shown that the blood-pressure apparatus gives misleading information even on this basic point. The diastolic blood-pressure can be measured about as accurately as the systolic blood-pressure. But the diastolic endovascular pressure is not a measure of the systole of an artery. In other words, we may have the equivalent of a normal diastolic pressure and the artery remain full of blood during the cardiac diastole.

We are perfectly familiar with stasis in the centrifugal stream with high diastolic pressure as seen in chronic interstitial nephritis, but I doubt if it is generally recognized that we may have the equivalents of normal systolic and diastolic pressures and still have a marked stasis in the centrifugal blood-stream.

ESTIMATION OF DIASTOLIC PRESSURE BY SPHYGMOMANOMETER CONTROLLED BY PALPATION OF ARTERIES

Another point of interest I wish to discuss is the manner of estimating diastolic pressure in an artery and the reason for its reliability. Since the sphygmomanometer has been devised there seems to be a very general concession by clinicians that endovascular blood-pressure can be estimated only by instrumental means and that the older method of relying on the fingers is inaccurate and misleading. The source of error does not lie so much in the sense of touch as in the choice of the artery from which the estimate is made. I readily admit the impossibility of making an accurate estimate of blood-pressure from the radial or even the brachial artery. The only artery which serves this purpose is the femoral artery. The reason for this is very apparent. The femoral artery at Poupart's ligament is very accessible and lies on the pubes against which the artery can be compressed. Here we have an artery which gives us practically the lateral pressure in the abdominal aorta and lies under the mastery of the finger. When we palpate an artery, we do not feel the endovascular

pressure, but we really feel the bursting tension of the arterial wall. The bursting tension on the walls of a hydraulic tube is equal to ΠR times the pressure, that is, 3.1416 times the radius of the tube multiplied by the pressure. This result is obtained by multiplying the circumference of the tube, which is $2 \Pi R$ by the known pressure per centimeter square and then dividing the result by two. The product of the circumference and pressure must be divided by two, because the bursting tension would be equal to the pressure on one side only of any given diameter of the tube. Therefore, ΠR times the pressure equals the bursting tension in any artery.

If pressure remains constant, the bursting tension will vary directly as the radius of the artery. If we now assume the femoral artery to have a radius four times that of the radial artery, it is quite apparent that any variation in pressure will be magnified four times in estimating the bursting tension of the femoral artery as compared with the bursting tension in the radial artery. This is analogous to the comparison between a microscopic view of 200 diameters and a microscopic view of 50 diameters. During the past four years it has been my practice to estimate the arterial pressure by palpating the femoral artery and afterward to use the blood-pressure apparatus. A little practice will enable one to estimate the blood-pressure very accurately. In pressures between 150 mm. Hg and 250 mm. Hg I find that there is rarely a disparity of more than 20 mm. between the digital and instrumental estimate, and as a rule the disparity is within 10 mm.

RESISTANCE OF ENDOVASCULAR BLOOD-PRESSURE AND HYPERTONIC VASCULAR WALLS TO PNEUMATIC CUFF

When very high pressures are recorded by the sphygmomanometer, the question has been raised as to whether the resistance offered the pneumatic cuff really represents endovascular pressure or the resistance of a hypertonic arterial wall plus endovascular pressure. The fact that supposedly high blood-pressures are often tolerated for years and with so little evidence of myocardial enlargement compels us to respect this criticism; but, on the other hand, when we have opportunity to study great oscillations of blood-pressure in a patient it seems very improbable that the resistance offered by the femoral artery should consist in wall resistance and the artery vary so little in volume during the periods of high and moderate pressure.

A year ago a patient at Lakeside Hospital had a blood-pressure which varied from 180 mm. Hg to 350 mm. Hg. These periods of hypertonus would last for several successive days and then subside. When the pressure registered as high as 350 mm. Hg in the arm, the resistance in the femoral artery was enormous. When the pressure would again descend to 180 mm. Hg the

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

femoral artery would feel slightly larger, but the difference in caliber could not have been great, for the variations in size of the femoral artery gave no hint of the change in pressure. If this great change in resistance of the arterial wall was due to resistance of a hypertonic wall and not to endovascular pressure we certainly had reason to expect great changes in the caliber of the vessels. This is always true in smaller arteries like the radial, where the proportion of muscular tissue in the arterial wall is much greater than in the femoral artery.

Since the arterial blood-pressure has been a subject of extended clinical observation, it has become apparent that either high endovascular pressure does not tax the heart so severely as we formerly believed or our measurements have been misleading, in so far as they have led to inferences regarding expenditures of energy in the output of the left ventricle.

REPORT OF CASES

CASE 1.—During the past winter a woman 50 years of age, who came under my observation, presented a very interesting problem in arterial pressure. The patient had not yet passed the menopause and had the appearance of being in good health. There is nothing in her family history or personal history which has any bearing on her present disability, except that the patient had always been a rather nervous person and for five years prior to the development of her first symptoms (which occurred eighteen years ago) she endured a great deal of worry and anxiety on account of the death of her husband and legal entanglements of his estate. Three years before the present attacks began, she found that in playing the piano her forearms became numb with a sense of tension, which was so uncomfortable and so persistent in its occurrence that piano-playing had to be abandoned. Fifteen years ago the first attacks of angina began. The pain begins between the shoulder-blades and runs about both sides of the thorax to the precordial area, and, when severe, runs down the inner side of both forearms. It is particularly severe in the right arm. These attacks of pain are accompanied by a sense of cardiac palpitation and eructations of gas from the stomach. The eructations of gas are not, however, followed by any sense of relief. After the attacks there is a peculiar feeling of numbness in the hands, particularly in the right hand. Both hands are then hypersensitive to both heat and cold. There is never any dyspnea on exertion, although exertion will bring on the attacks of pain. Eating a large meal will produce the attacks, and often the patient is wakened out of a sound sleep by the pain. The patient's appetite is good, the bowels are slightly constipated.

The urine showed no indications of any renal involvement. There were no signs of any kind brought out on physical examination which betrayed any alteration of reflexes or any change in afferent or efferent nervous impulses. All diseases of the brain and cord or peripheral nerves could be excluded. The lungs, mediastinum, liver, spleen and alimentary tract revealed no signs of disease. The eye-grounds were normal.

The left border of the heart in the fifth interspace was 12 cm. to the left of the median line and the right border of the heart at the third interspace was 3 cm. to the right of the median line. The upper border of the heart was at the top of the third rib in the left parasternal line. The left border of the heart was not sensitive to direct percussion. I mention this because we very commonly find in the early stages of cardiovascular disease, when the myocardium begins to show some sign of distress, that the external border of the heart is marked by tenderness to direct percussion. This tenderness is not present in cardiac enlargement due to Basedow's disease, for in the early stages of Basedow's disease the cardiac enlargement is not associated with any impairment in the mass movement of blood. This tenderness is not present in cardiac enlargements of long standing, when due to either valvular or myocardial disease.

In our case, therefore, there was not a single sign of any kind which would indicate any impairment in the mass movement of blood. When the patient entered the hospital, there

was perfect consistency between the feel of the femoral artery and the blood-pressure as registered by the sphygmomanometer applied to the arm.

The maximum systolic blood-pressure on entrance was 235 mm. Hg. The patient remarked that she had caused the bursting of every blood-pressure apparatus which had been used on her. The blood-pressure was first measured about two years ago and was then found to be 350 mm. Hg. The same high record was made by several physicians at different times. The highest pressure found during the patient's three weeks' stay in the hospital was 245 mm. Hg. Relief from the attacks of angina has invariably followed immediately after taking 1/100 grain of nitroglycerin. The pains were so severe and relief followed so promptly from the use of nitroglycerin (which was always at hand) that we never had the opportunity to measure the blood-pressure during an attack, but I think it is fair to assume there was a marked rise in blood-pressure during the attacks of angina.

On February 18 the following experiment was made with nitroglycerin to see how much the blood-pressure could be lowered with nitroglycerin. A 1 per cent. alcoholic solution was used and the liquid was dropped on the tongue from a medicine-dropper.

Time, P. M.	Dose, Drops.	Pulse.	mm. Hg B.P.
9:30.....	1	75	215
9:32.....	1	72	224
9:34.....	1	76	224
9:36.....	1	81	238
9:38.....	1	81	238
9:40.....	1	84	234
9:42.....	1	84	234
9:44.....	1	81	208
9:46.....	1	81	208
9:48.....	2	81	162
9:50.....	2	78	162

In twenty minutes there were thirteen drops of a 1 per cent. solution of nitroglycerin given which was well tolerated. Nothing more than a slight sense of fullness in the head was complained of. The patient had the best night's sleep she had had for many weeks. The blood-pressure in the arm was never again as low as 162. This shows, however, that sclerosis of the artery could not have been a factor in resistance to the pneumatic cuff. There was no palpable thickening of any of the accessible arteries. An ophthalmic examination revealed no abnormality in the retinal nerve-heads or retinal vessels.

As soon as it was once learned that the blood-pressure could be reduced by the use of trinitrin without causing discomfort or any untoward symptoms, one drop of the 1 per cent. solution was given every hour and the dose was gradually increased in the course of three days to 5 drops every hour. The blood-pressure chart showed no alteration. The pressure was taken from the right arm every four hours. I then palpated the femoral artery and found the pressure nearly normal in that artery. The cuff was then applied above the ankle of the right side and the dorsalis pedis artery used for control. The artery was of fair size and quite as suitable for the purpose as the radial. Here the maximum pressure was only 160 mm. Hg. The blood-pressure apparatus nearly always gives a higher registration when applied to the leg, so it seems fair to assume that this measurement would be consistent with an arm measurement in the average normal subject of about 20 or 30 mm. less. The cuff was then applied to the left arm and the pressure measured there was slightly less than in the right. Here is a patient with a history of vasomotor angina with blood-pressure of 245 in the arms and 160 in the legs after trinitrin had been given in large doses. The pressure in the femoral arteries prior to the administration of nitroglycerin was consistent with the pressure in the arms; now, however, the femoral and brachial arterial pulses did not feel as though they belonged to the same person.

If it is possible to have widely differing blood-pressures in branches of the aortic system, then it is apparent why this patient, whose brachial pressure was so high for two years (of which we know), revealed no signs of distress in the heart. If the splanchnic arterial distribution constantly maintained the same low pressure, compared with the accessible arteries, as the femoral

artery now shows, compared with the brachial, then, it is quite apparent that the brachial pressure did not habitually represent the pressure in the thoracic aorta and for this reason the myocardium showed no signs of distress after years of supposedly high pressure.

Another explanation of myocardial preservation under such conditions was suggested by the history of another patient who was first seen in 1905.

CASE 2.—The patient, a man, then 35 years old, had marked cardiac hypertrophy, high arterial pressure and pulmonary edema. Rest in bed, milk diet, warm baths and nitroglycerin gave him great relief. After a month of this treatment he left the hospital and was not seen again until four and a half years later, in 1909, when he again presented himself with the same symptoms, although not quite so severe as four and a half years before. It was then learned that he had continued uninterruptedly at his vocation of barkeeper, that he had been quite comfortable during all that period, and that he had taken nitroglycerin for only a few weeks after his first stay in the hospital. We then found that his blood-pressure on waking in the morning was only 130 mm. Hg, and in half an hour it would again be 190 mm. Hg, where it obstinately remained in spite of the use of nitroglycerin. There was never any disparity between the feel of the femoral pulse and the brachial pulse in this man, but the pressure in the leg was not taken with the instrument. It was found later that if the blood-pressure was taken immediately when the patient awoke from a short nap of thirty minutes, it was only 130 and regained its original point of 190 about one-half hour after waking. These observations were made repeatedly in this man on waking in the morning and on waking after short naps and the results were always the same.

This patient, therefore, had an arterial hypertonus when awake, and vascular relaxation when asleep. What preserved him so long against myocardial exhaustion was the slumber relaxation. This amounts to a very great compensatory measure in a man who gets nine hours' sleep every day. To return to the first patient, however, it was found that she did not at any time have a lowered blood-pressure on waking; and furthermore her attacks of angina often came on during sleep; consequently, we can eliminate slumber relaxation as a compensatory measure in her case.

The other problem which presents itself is whether the patient really had such widely differing pressures in the femoral and brachial arteries or whether the hypertonus of the artery offered the resistance to the pneumatic cuff. Were we really measuring resistance of a hypertonic arterial wall and not endovascular blood-pressure? Three resident physicians at Lakeside and I tried exposing an arm to extreme cold to see if the pressure in the exposed arm differed from the pressure in the other arm which was not exposed to cold. The experiment was made in the following manner:

The person under observation lay flat on a table with a trough of ice-water at his side. A blood-pressure apparatus was applied to the left arm and to the right arm at the same time and the pressure recorded. Then one arm was laid in the ice-water and, when the arm became painful from extreme cold, the pressures in both arms were recorded. In the other three men there was no essential change, but in my own case there was a marked rise in pressure in the cold arm and no rise in the other arm. The pressure in my right arm was 136 and in the left arm 126. Then the right arm was laid in the ice-water so that the upper arm as high as the top of the cuff was covered. When the arm became very painful, the pressure in both arms was measured. The left arm recorded 126 as before but the maximum pressure in the right arm was 158, a rise of 22. There could have been no error in palpating the radial artery, because I could tell the instant the least trickle of blood passed beyond the cuff by the feel of the water-hammer jet, which could be perceived equally well when the arm was

in and out of the water. The instant the arm was lifted out of the water and the pain ceased, the pressure was again lowered to the original point of 136.

On another occasion I tested my blood-pressure much in the same manner, but under different conditions. The early part of the day from 9 to 11.30 a. m. was occupied, in making a ward visit, from 12 to 2 p. m. was occupied with writing, then a moderate luncheon, at which two cups of tea were drunk, was followed by smoking one cigar. An hour later the experiment was made. The pulse-rate was 72 per minute. A blood-pressure apparatus was applied to each arm and the records were made by two resident physicians. One man watched each apparatus and recorded their results independently of one another. Before the right arm was put in the ice-water the maximum systolic and diastolic pressures, respectively, were 170 and 133 in the right arm and 168 and 132 in the left arm. The femoral artery was then palpated by Drs. McLaughlin and Boyer (who are experienced in estimating blood-pressure) and both agreed that, when the one arm was put in cold water, a decided rise in pressure was perceptible, which was consistent with the records made by the instrument. Several trials showed a rise to 180 in the chilled arm. It does not seem likely that the rise in pressure was due to pain, for, though the three other men experienced quite as much pain, their pressures did not rise after exposure to cold. On both occasions when the observations were made, the exposures to cold were made repeatedly. On the first occasion there was a rise only in the chilled arm and none in the other arm. The second trial showed a consistent rise in all accessible arteries. The rise was both in the systolic and diastolic phases. The disparity between the pressure in different arteries in the case of one patient was apparent only after trinitrin was used in considerable dosage, but this disparity was confirmed by repeated examinations during a period of a week. The differing results in my own experiments with the cold water were just as certainly established by repeated measurements.

Whether there were really different endovascular pressures in the several arteries, or different degrees of hypertonus in the arterial walls which gave the results, the deduction remains the same, namely, that the blood-pressure apparatus applied to accessible arteries does not give infallible information as to the aortic blood-pressure and, as a consequence, it is not safe to rely on routine measurements from the arm as a guide to the employment of vasodilators in treating patients with high arterial pressure.

The maximum systolic and minimum diastolic pressures may be within the normal limits and still the mass movement of blood be much impaired. Recently I observed a ward patient at Lakeside Hospital who had pronounced cardiac dilatation and tricuspid insufficiency, as evidenced by dilated jugular veins with a systolic centrifugal pulse, which was plainly seen in the jugular veins and was distinctly palpable in the liver, which was enlarged a hand's breadth below the costal border. The patient had general edema and very marked cyanosis and orthopnea. The pulse-rate was 90, the maximum systolic pressure in the arm was 135 and the minimum diastolic pressure 96. That there was a severe alteration in the mass movement of blood in this patient was clear enough from the cyanosis, dyspnea, venous and hepatic pulsations and edema of the lower extremities.

Although the maximum systolic and minimum diastolic pressures were equal to those we often find in patients with a good mass movement of blood, palpation of the arteries revealed an artery filled with blood during the diastolic phase. There was, then, an increased resistance in the peripheral arterial distribution and stasis in the centrifugal arterial stream without an elevation in either the systolic or diastolic pressure. With

these arterial conditions, then, there must be a small ventricular output with each ventricular systole. A very small ventricular output is sufficient to elevate the pressure to moderate height (135 mm. Hg) in an arterial system which is full of blood at a moderate pressure during the cardiac diastole. This patient's myocardium was the factor which was chiefly at fault in the circulatory system. As a rule, patients with an increased peripheral resistance in the arterial system have high systolic and diastolic pressures, but, when the myocardium becomes inefficient at the same time that the increased arterial resistance develops, the systolic and diastolic pressures remain the same as in health, but the mass movement or minute volume of blood is greatly diminished.

If reliance is placed on the blood-pressure during systole and diastole, as a guide to the state of the circulation one can be greatly misled, for the pressure measurements are of value only when they are contemplated in the light of other evidence, which must be gained by observation.

DETERMINATION OF MINIMUM DIASTOLIC PRESSURE BY BLOOD-PRESSURE APPARATUS

Finally, I wish briefly to discuss the blood-pressure apparatus as a means of determining the minimum diastolic pressure. The two methods employed are (1) to find the pressure-point in the pneumatic cuff at which the mercury column has a maximum excursion, and (2) to find the point at which the sound heard distally to the cuff, suddenly diminishes in intensity, as the pressure in the cuff is gradually lowered. The first method is much less satisfactory than the second method. It is the second method which has some points of interest in the physics of the arterial circulation. If the brachial artery is compressed against the inner surface of the humerus, and the bell of a stethoscope is applied over the artery a short distance below the point of compression, there will be, of course, no sound audible so long as the artery is obliterated during cardiac systole. On diminishing the pressure so that a jet of blood escapes under the compressing finger, there will be a murmur and sound audible during the heart's systole, but the murmur predominates and often the sound is scarcely perceptible with the murmur. If a pneumatic cuff is applied and the pressure in the cuff is diminished so that a jet of blood escapes under the cuff during systole, but not during diastole of the heart, the relative intensities of murmur and sound are reversed. The sound, which is very like the "pistol-shot" tone, is loud and the murmur is faint. In many cases the murmur is not audible and only the pistol-shot tone is heard. If the femoral artery is compressed at the pubes, the so-called stenosis murmur is very loud and the pistol-shot tone is not heard at all. If one compresses the femoral artery, however, and then very cautiously relaxes the pressure so as to permit the very smallest possible jet to escape under the finger a pistol-shot tone is heard unaccompanied by a murmur, but, unlike the case with the brachial artery, when a larger jet is allowed to escape by relaxing the pressure a very little more a loud murmur is heard without the pistol shot tone. The sharply defined pistol-shot tone is heard only a short distance below the cuff or compressing finger in all instances.

The conformation of the jet seems to determine whether a murmur or pistol-shot tone will predominate. Flat compression of the artery gives, in all probability,

a different contour to the narrowed lumen from that procured by the circular pneumatic constriction. In the latter case the compression is applied in a number of different radii, whereas, in the former case, only a narrowed chink can be formed. Probably, as the constricted lumen more nearly assumes a circular contour, the water-hammer effect is more in evidence and the murmur is wanting. When the pneumatic cuff is used, in many cases only a pistol-shot tone is heard and no trace of a murmur is heard. When the brachial artery is compressed by the finger, a murmur is always audible and predominates, whereas the pistol-shot tone is comparatively faint.

Another point about this pistol-shot tone is of interest. Suppose we have a maximum blood-pressure of 150 and a minimum pressure of 100. The pistol-shot tone below the constricting band will have attained its maximum, when the cuff pressure is at about 145, and will remain at the same intensity until the pressure in the cuff is just high enough to prevent the escape of fluid during the heart's diastole. Then when the pressure in the cuff is no longer high enough to shut off the centrifugal flow during diastole of the heart, the sound becomes faint, so that the pistol-shot tone will grow faint immediately when the cuff pressure goes below 100. The pistol-shot tone is due to the escaping jet of blood and not at all to the excursion of the collapsed arterial wall below the cuff. As the pressure in the cuff is diminished, the arterial lumen under the cuff increases; consequently, with a diminishing pressure in the pneumatic cuff the volume of the jet increases, but the velocity will diminish. Therefore, the mass times the velocity in the jet remains constant, until a point is reached at which a null pressure in the artery distal to the cuff no longer exists during cardiac diastole, and then the difference in pressure, above and below the cuff, is no longer great enough to produce the water-hammer effect.

I attempted to reproduce these phenomena by inserting a cannula in the subclavian artery of a fresh cadaver. The radial artery was opened and the cuff of a blood-pressure apparatus applied to the arm. Liquids of varying specific gravities were pumped through the artery, when the pressure in the pneumatic cuff was at varying points from 120 to 300 mm. Hg, but the pistol-shot tone could not be produced and the pulse of the jet of liquid, as it shot beyond the constricting cuff, was very different from the pulse of the jet of blood during life. Instead of the high velocity with which the jet of blood during life shoots under the cuff, there was a lazy rise and fall in the pulse below the cuff. No pistol-shot tone was heard; nothing but a murmur was audible with all the pressures and kinds of impulses we were able to give the jet of liquid. It would evidently require a nicely constructed power-pump to produce the same kind of jet which occurs in the blood-stream during life.

When air instead of liquid was pumped through the artery, the velocity of the jet was of course much greater and the pistol-shot tone immediately below the cuff was very loud. When a bandage was drawn about the forearm at the same time that air was pumped through the artery, the intensity of the pistol-shot tone diminished, as very slight pressure was applied by the constricting bandage. As soon as the pressure of air in the artery between the cuff and the bandage no longer sank to zero between the impulses from the pump, the pistol-shot tone diminished in intensity.

When the brachial artery immediately below the cuff was exposed and opened and traction applied by means of two forceps so as to eliminate the factor of excursion of the arterial wall, the pistol-shot tone below the cuff remained the same as before.

CONCLUSION

I do not wish to discourage the use of the blood-pressure apparatus. It is a very valuable instrument, but its chief value consists in teaching us how to palpate the arterial pulse. No instrument can take the place of the finger, nor can any instrument teach as much about the pulse as can be learned by palpation.

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ABSTRACT OF DISCUSSION

DR. JUDSON DALAND, Philadelphia: We owe Dr. Hoover a debt of gratitude for calling attention so plainly and definitely to the facts, not generally remembered, that the blood pressure varies at different times of the day, and more particularly, in certain cases, and that there is a difference between the blood pressure in the waking and sleeping states. Again, the mere application of the pneumatic cuff in certain neurotic subjects often increases the blood pressure as much sometimes as 30 or 40 mm. Often the fainting patient will permit of a true reading. Observation systematically made will show in many instances a temporarily extraordinary increase in the blood pressure. Therefore, it seems to me that we should bear in mind that variations occur in many cases. The case reported by Dr. Hoover, so far as I know, is a very unusual one; I have no recollection of any such experience in my practice, nor do I recollect any such extraordinary disparity between the blood pressures of the inferior and superior extremities. So far as the determination of the blood pressure by means of the finger applied to the radial artery is concerned, I have found that in about three-quarters of the cases I can estimate approximately the blood pressure; but in the remaining 25 per cent. I am at sea. We should thank Dr. Hoover for calling our attention to the femoral artery where manifestly there is offered a physical condition vastly superior to the radial artery.

THE PATHOLOGY OF MASTOIDITIS AS REVEALED BY THE X-RAY *

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The x-ray study of the mastoid region, which was begun in March, 1908, has undergone a slow but gratifying metamorphosis. Undertaken with grave doubts as to its practical value, it has developed into a method which rivals in its accuracy other recognized methods of physical examination.

At the inception of the work, it promised at best to show the anatomy and the grosser chronic changes in the mastoid region. Then the graver acute changes were registered on the skiagram, and later it was found that the milder acute mastoid affections yielded roentgenologic evidence of their presence. Within the last few months it was discovered that in acute otitis media without clinical signs of mastoid involvement, the x-ray would often show clouding and filling up of the mastoid cells just back of the antrum, which changes may either

recede or progress as the patient either recovers, or goes on to what is clinically termed mastoiditis. The x-ray method is presented then as a method of studying *intra vitam* the gross pathology of the mastoid.

A correct roentgenologic technic is, of course, the *sine qua non* in this work, and all conclusions should be based upon technically good plates. The method employed for correctly skiagraphing the mastoids was presented before this section one year ago.¹ Further details of the x-ray technic were outlined by me in a previous paper² and need not be repeated here. In no instance has a technically good plate failed to give valuable and accurate information. Barring those uncommon cases in which the cortex over the mastoid is excessively thick, or in which the mastoid cells are poorly developed, the x-ray method should in every case reveal in a gross way the pathologic status of the mastoid process.

The question of excessive distortion of the relations of the mastoid as a result of the obliquity of the rays was answered by making a series of tests on the dried skull. Lead markers were placed on the tegmen, groove for lateral sinus, and mastoid tip, and measurements made from the skiagraph were compared with the actual distances. In no instance did the discrepancy exceed 3 mm., which difference for practical purposes may be disregarded.

My interpretation of the skiagram is always based on a comparison of the diseased with the opposite normal mastoid. After repeated comparisons, in normal individuals, in no case did I find essential differences between the two normal mastoids of the opposite sides. While there may be variations in the size, number and arrangement of the cells of the two sides, the mastoids as a whole were closely similar in type. That is, if there is a pneumatic mastoid on one side there will be a pneumatic mastoid on the other, or if the one mastoid is of the diploetic type the opposite one will be of the same type. Plageman says "On a basis of 85 skiagrams of normal skulls, we find that as a rule the two mastoid processes of healthy individuals are almost identical." Where both sides are diseased more difficulty is encountered in reading the plates, but after a study of many plates a fairly accurate interpretation may be made of a single plate without a comparison with its fellow of the opposite side.

Previous inflammation in a mastoid usually leaves permanent alterations in the bone, either in the form of more or less extensive absorption of the mastoid process or sclerosis of same, and if this inflammation occurs in early life the development of the mastoid may be so retarded as to result in a diploetic or even sclerotic type. Therefore, in interpreting mastoid plates the previous aural history must be ascertained.

On the mastoid skiagrams of children under 10 years the mastoid appears entirely spongy or diploetic, there are few visible cells, and the tip is undeveloped. The tip at this time consists simply of an inner and outer table, with little cancellous bone between, and shows little structure on the skiagram. From the age of 10 to 15 the mastoid takes on the pneumatic characteristics: large cells appear and grow downward toward the tip, its diploetic structure finally giving way to the more or less pneumatic adult type. The development of the mastoid may be beautifully demonstrated by a series of successive skiagrams.

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Iglauer, S.: The Clinical Value of Radiography of the Mastoid Region, THE JOURNAL A. M. A., Sept. 23, 1909, p. 1005.
2. Am. Quart. Roentgenol., December, 1909, No. 1, ii.

In order to study the mastoid relations more graphically, stereoscopic skiagrams may be made. For this purpose, I have devised a small stereoscopic platform by means of which the two stereoscopic exposures may be made on a 5 by 7 plate. When developed and dried this plate may be placed directly without printing or reduction in a cheap parlor stereoscope and viewed by transmitted light. This method has not been used as a routine, because of the fact that four exposures (two for each mastoid) are required. A reluctance to make repeated exposures has interfered also in following the clinical cases at various stages from onset to cure. While the danger of the temporary Roentgen alopecia is a remote one, even though the exposures be repeated, provided an aluminum and leather filter be used, it was thought best not to take the chance of embarrassing the work at this time by any such untoward after-effects. Therefore, in most of the patients examined but one exposure of each side was made. Just one caution should be given in regard to the character of tube best suited to this work. The lowest or softest tube possible should be employed. The higher tubes give crisper and more beautiful pictures, but when we consider the small size of the mastoid cells and the fact that we are attempting to show all the smallest septa and contents of these cells, those tubes which give beautiful bone detail of the heavy cranial bones will often fail to show the slightest changes in density in the mastoid region.

CLASSIFICATION OF PATHOLOGIC CHANGES

The pathologic changes which may be noted on a skiagram may be tabulated as follows:

1. Slight haziness of cell spaces or complete filling of same with something denser than air. These changes represent clinically otitis media with slight mastoid involvement and the milder forms of mastoiditis. The something which fills the cells is in all probability serum. To show these slight changes the skiagram must be made with a soft tube and slightly underexposed.

2. Marked clouding of cell spaces with loss of distinctness and partial destruction of cell walls. Clinically these changes are found in the more severe grades of mastoiditis with pus formation and bone softening.

3. More or less complete loss of structure of the mastoid process occurring (a) either in the form of localized abscess formation, or (b) as is often seen in the subacute cases in the form of diffuse loss of structure, indicating advanced necrosis of the entire mastoid process.

4. Increased bone density of the mastoid process with (a) partial or complete obliteration of cells and (b) with or without bone defects. This class represents the chronic sclerosed cases.

These changes will be discussed in the reverse order, the order in which they are recognized.

CHRONIC MASTOIDITIS

The first report of this work was based entirely on the examination of the chronic cases. The ease with which chronic changes can be shown on the skiagram offers a method of determining in any case of chronic otorrhea the gross pathologic condition of the mastoid process. In those cases in which the cause of the continued discharge cannot be determined by the usual methods the skiagram may give the desired information by showing the extent of the sclerosis on the one hand or gross bone defects on the other.

The skiagraphic appearance in these cases is a thickening and obliteration of cells. In older cases the entire

mastoid process appears dense and structureless, giving no indication of the presence of cells. From my experience it would appear that this extensive sclerosis occurs frequently after mastoiditis of a mild and not necessarily long-continued type, since the sclerosing process is a healing process. Interesting to note is the fact that, in the examination of supposedly normal cases for purposes of study, every now and then a markedly sclerosed and often undersized mastoid process would be found, and no history of previous ear trouble could be elicited from the patient. These undersized sclerotic types probably represent a sclerosis, partial absorption or retardation of mastoid development, consequent on a forgotten otitis media of early childhood. Aside from these occasional exceptions in all of the markedly sclerosed cases the patients examined had symptoms in the form of intermittent otorrhea. To illustrate different phases several cases will be cited briefly.

CASE 1.—*Sclerosis*.—A. V., aged 16, presented intermittent discharge from the left ear dating from an attack of acute otitis media three years back. Examination revealed a thickened drum with a small perforation in the antero-inferior quadrant. X-ray examination showed a sclerotic mastoid on the left side, with very little evidence of cellular structure. Subsequent operation verified the x-ray findings. This history is typical of a majority of chronic cases encountered.

CASE 2.—*Sclerosis with Bone Defect*.—J. Z., Italian, was admitted to the Cincinnati Hospital because of some pain and tenderness over the mastoid. Previous history could not be obtained, except that the affected ear had discharged for some time. Examination of the canal revealed changes associated with chronic middle-ear suppuration. An x-ray examination of the mastoids showed no cells on the affected side. Instead, the bone seemed to be hollowed out just back of the antrum. On operation, no cells were found, but a large bone defect in a small sclerotic mastoid.

CASE 3.—*Subacute Case with Bone Softening*.—This is a subacute rather than a chronic case, but is included here because the plate showed typical bone defects in a thickened mastoid, such as might be encountered in the more chronic cases: Mr. C., aged 35, came in from one of the surrounding towns because of continued discharge and pain over the mastoid dating back seven weeks. The case had received practically no treatment. Examination showed a perforation in the anterior inferior quadrant. No bulging of the canal. Temperature was 99.5 in the evening, normal in the morning. Pain was marked especially at tip. The patient was referred to me for x-ray examination, which revealed an apparently thickened and structureless mastoid except for several irregular areas of apparently more necrotic bone which seemed to honey-comb the mastoid. Operation the following day substantiated the diagnosis in every detail.

SEVERE ACUTE MASTOIDITIS

Every case of severe acute mastoiditis has given distinct evidence on the skiagram. The changes varied from filling of the mastoid cells with something other than air (serum, pus or granulations), with indistinctness and partial disappearance of cell outlines, to circumscribed abscess formation or diffuse loss of structure of the mastoid.

CASE 4.—Mrs. S. gave a history of a running ear following an attack of influenza. Discharge continued two weeks and then stopped. Two weeks later, or four weeks after the onset, the patient came under medical observation because of pain over the mastoid, especially right. Examination revealed a thickened drum, no discharge, no perforation, marked tenderness over mastoid, but no redness or swelling. Temperature was 99 to 100; x-ray examination revealed a hazy mastoid whose cells were no longer air-filled and septa partially broken down. Operation the day following the x-ray examination verified the skiagram.

CASE 5.—Miss W., aged 25, had had influenza three weeks previously with a running ear, but without pain or tenderness over the mastoid. Discharge continued for three weeks, and patient finally sought medical attention because of an increasing malaise. Examination revealed a large perforation in posterior part of drum, with scant or no discharge. There was no swelling or redness over the mastoid, but marked tenderness on deep pressure over antrum, no fever. X-ray examination revealed a small abscess in the mastoid about the size of a hazel-nut. The rest of the mastoid appeared hazy and indistinct. Subsequent operation verified this finding in every detail.

The following case is typical of a number of cases observed from the onset, in which there were definite signs of severe mastoid involvement, but in which the operative indications were not clear. Operative interference is often delayed in these cases awaiting a spontaneous resolution. The x-ray plate showing the amount of destruction may be a deciding factor.

CASE 6.—Miss H., a nurse at Cincinnati General Hospital, aged 30, developed, incident to influenza, intense pain in the ear, which in a few hours was followed by rupture of the drum, and a profuse bloody discharge. Three days later the staff otologist was called to see her because of pain and tenderness over the mastoid. He found a small perforation and enlarged it by incision. Tenderness and pain abated, and it was thought that recovery would follow in a few days. Seven days later there was a recurrence of the pain and paracentesis of the drum was again performed. The pain and tenderness now persisted in moderate degree, and a week later I was asked to make a skiagram. The skiagram showed absolutely positive evidence of a breaking down of the entire mastoid, and the operation the following day, almost three weeks after the onset, verified the x-ray finding.

MILD ACUTE MASTOIDITIS

In the study of the milder acute cases an interesting problem presented itself. By the milder cases is meant those cases in which there are distinct demonstrable changes in the mastoid but in which there is little or none of the gross destruction seen in the more severe cases. These cases may or may not progress to spontaneous recovery. The first change is that of fluid-filled cells. That is, the cell-spaces, instead of standing out sharply and clear, show by comparison with the opposite side that the air is displaced by a more solid substance, which may be serum, pus or granulations, or all three combined. The cell walls are fairly distinct and not broken down. This appearance of fluid-filled instead of air-filled cells is very characteristic of this stage; and in the attempt to draw operative indications from the plate the question as to how much bone change in the mastoid may occur without precluding spontaneous recovery, that is, what amount of skiagraphic bone change makes operation imperative, presented itself. Of course, I did not attempt to decide such a weighty problem. In discussion the fact that each text-book and each specialist has individual ideas regarding the pathology of acute mastoiditis was somewhat confusing. Those of the conservative school cite many instances of clinically severe mastoiditis which recover under the expectant treatment, whereas those of more radical tendencies advise early operative interference when fairly positive clinical evidence of mastoid involvement is at hand. The thought at once suggests itself whether it would not be possible by means of the x-ray to decide this point, and by a comparative x-ray study of a large series of cases to determine what amount of bone destruction makes operative interference imperative, if, indeed, the question can be settled at all. Although my series of cases is far too

small and too incompletely studied to warrant any definite conclusions, yet I adhere to the following tentative rule: If in an acute case the skiagram shows fluid-filled cells with little or no breaking down of cell walls, an expectant line of treatment is suggested, whereas, if the bone destruction is definite and considerable, operation is recommended.

The following two cases are typical of this milder type of mastoiditis:

CASE 7.—Mrs. E., aged 35, had for ten days suffered with pain in the ear. Examination revealed in addition to inflamed drum, pain and tenderness over the mastoid. There was some fever, 100° in evening 99.5° in morning. The drum was incised but symptoms continued a week unabated. An x-ray examination made at this time revealed the mastoid cells fluid-filled but little or no bone change. After two weeks, discharge gradually ceased and mastoid symptoms abated. Drum returned to normal, pain and fever disappeared, whispered voice heard at 12 feet. A second x-ray examination made two weeks later showed the affected mastoid apparently normal, the cells containing air.

CASE 8.—Mrs. M., aged 33, suffered severe pain in ear following an acute rhinitis. On examination, drum was bulging, covered with hemorrhagic blebs, mastoid tender over antrum. Drum was lanced and few drops of serum exuded followed by sero-bloody discharge which continued three days, and suddenly stopped. Pain returned. Drum was again incised, and mucoserous discharge continued. Marked tenderness was present over mastoid and antrum, extending toward tip, but there was no fever. After several days discharge again stopped, and buzzing and throbbing pain was complained of. X-ray examination at this stage revealed a haziness of the cells just back of the mastoid antrum, but not extending over the rest of the mastoid. The slight changes seen in the plate did not seem to warrant any active interference. From this time the case went on to recovery and a second plate made (two weeks after the first one) showed apparently a restoration to the normal.

Several cases similar to these were encountered at the Cincinnati General Hospital, but as the patients treated here often insist on leaving before entirely recovered and are then lost track of, the ultimate outcome could not always be followed. Of great interest would be some statistics as to how frequently such mild mastoid involvement goes on to ultimate recovery, and what percentage become chronic or give rise to intercranial or other complications.

ACUTE OTITIS MEDIA

After this success in detecting the milder changes in the mastoid a small series of patients with acute otitis media without clinical signs of mastoiditis was examined. To my surprise more than 50 per cent. of the patients skiagraphed gave evidence on the plate of slight mastoid involvement. This involvement was indicated by a slight haziness of the cells just back of or surrounding the antrum. The bone contours were, however, sharp and distinct.

The x-ray study of the mastoid region is submitted at this time as an aid in the obscure cases. A more extended study of a large series of cases will, it is hoped, put this work on such a firm basis that in any case an x-ray examination may yield results so valuable as to justify the procedure.

But the work has a broader application. By repeated examinations the course of a single case may be studied. By extended studies over long intervals of months or years some new phases of the pathology of mastoiditis may be brought out. The ultimate results of acute and chronic mastoiditis in early childhood, their influence on the development of the mastoid and the auditory func-

tion in later life, the final results of those types of mastoiditis in which the patients apparently recover without operation, and the relation of mastoid sclerosis to the capsule and functions of the internal ear, are problems on which systematic x-ray work may possibly throw some light. As a preliminary to such studies involving repeated exposures, it must first be determined at what intervals and how many exposures may be safely given without causing alopecia and what form of technic will best guard against it.

The cases of acute, subacute, and chronic otitis media in young children aged 1 to 10 presented such unique appearance on the skiagram as to warrant special consideration. It was my privilege to examine about ten patients of this kind, who presented no marked clinical signs of mastoid involvement. Almost without exception the mastoid showed changes varying from a slight haziness of cells in the earlier cases to more or less bone destruction in the more severe cases, while the chronic ones showed pronounced sclerosis. Owing to the small size of the cells and the immature development of the mastoid, the amount of bone change is often hard to determine in these cases. In every case, however, in which such haziness of the mastoid was evident if operation was subsequently performed, actual mastoid involvement was found, justifying operation. It would appear that in a majority of cases otitis media in early childhood is accompanied by distinct mastoid involvement. As mentioned above, the small size of the mastoid in these cases made it rather difficult to draw operative indications from the plate.

22 West Seventh Street.

ABSTRACT OF DISCUSSION

DR. HENRY HORN, San Francisco: Dr. Lange said that in about 50 per cent. of these cases of acute diseases there were some slight changes in the mastoid tip. That simply shows how accurate have been our clinical observations up to this time. There can be no question as to the value of the x-ray in the study of these conditions and in the study of accessory cavity disease, but the principal point is this: that it is essentially a matter for the expert x-ray man. It is out of the question for every physician, or even for every hospital to try it. An x-ray, especially of the accessory nasal cavities, must be sent to a man who has special expertness in this particular line of work. A man who makes a good pelvic or chest picture may not necessarily make a good plate in this work. Then, of course the enormous expense of the thing puts it exclusively in the hands of large clinics and makes it applicable here and there for the rich patient. As a clinical method of diagnosis it is valuable, but it is not yet one that can be used in general practice.

DR. CULLEN F. WELTY, San Francisco: This subject was up last year for discussion and I criticized it, as I am going to criticize it to-day for the following reasons: We have clearly defined indications for operative procedure in both acute and chronic mastoiditis; I would much rather depend on my judgment in an individual case, and possibly, I may say, do an unnecessary operation, than depend on any machine for making a diagnosis. I have operated in a few cases to my knowledge, in which probably the patients would have recovered without operation; at the same time I have not lost a single patient with acute mastoiditis and I maintain as an otologist that no such loss should occur. If we lean on this thing in one case and that thing in another we lose our individuality of judgment. We have all this work done for us and it makes us sleepy.

DR. F. E. AUTEN, Belleville, Ill.: I believe that the x-ray examination in mastoiditis is a valuable aid. It may be a little out of the reach of most of us but it should be used when available. I had recently a case in which the patient did

not want to have the mastoid opened and I would have liked very much to have this means of diagnosis at that time.

DR. SYDNEY LANGE, Cincinnati: The presentation of a method of this kind before an audience that has not had the opportunity of seeing and studying the plates and comparing them with the clinical and operative findings may leave a doubt in the minds of some as to its practical value. I purposely refrain from showing any lantern-slides owing to inadequate facilities for darkening the room, but I have many of the original plates with me which I shall be pleased to demonstrate to those who may be interested.

While in the average case of mastoiditis, the clinical features may be clear enough, I am convinced after speaking with a number of otologists that operative indications are not always clear, and I believe that all recognized authorities have so expressed themselves. Politzer in his book makes the statement that the most extensive necrosis may occur in the mastoid without any of the usual signs being present. And I have seen a few such cases of mastoiditis in which there were indefinite general, cerebral or septic symptoms without the usual local signs of mastoiditis.

In one case presenting obscure septic symptoms the greater trochanter of the femur seemed to be the focus of infection. It was drilled into and nothing was found. The cause was a broken-down mastoid which did not declare itself in the usual way. I have not examined any case of thrombosis of the lateral sinus but I do not think that the thrombus would show on the x-ray plate.

CONTINUED SUBNORMAL TEMPERATURE IN INFANCY*

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The opportunity to observe and study a case of continued subnormal temperature in an infant, recently, has interested me in the subject.

On looking up the literature, however, one finds much written about fever and increase of temperature, but very little recorded or written on subnormal temperature. The text-books, also, usually dismiss the subject with a few lines or, perhaps, in the description of a disease, merely say that the temperature may be below normal.

Have we not, as physicians, been too prone to disregard those depressions of temperature below normal and to consider only the occurrence of fever as of clinical significance? We do this perhaps from indifference or because there seems no ready explanation of the hypothermia.

Cases of noticeably low temperature in adults appear to be recorded more often than do those of infants or children. Then too, the cases observed have been usually of some fatal illness and the hypothermia was marked just prior to death.

Munson¹ of the Craig Epileptic Colony reports eighteen cases of subnormal temperature, more or less continuous, in which three patients were children. All were epileptic and all died. Of the children, one was a girl of 7 who was both tuberculous and epileptic and had a temperature of 91 F. before death. In the other two children the temperature sank as low as 81 in one case and to 76 in the other, both of course fatal. J. H. Williams² reports a 5-months-old babe with tuberculous

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Munson: Some cases of Low Temperature, Arch. Int. Med. 1910, v. 120.

2. Williams, J. H.: Med. Rec., New York, 1898, p. 640.

meningitis in which for ten days preceding death the temperature was below normal, hovering around 94 and 96 and at one time going as low as 87. Dr. F. W. Loughran³ reports a 6-weeks-old babe who died of septic infection. The last two days before death the temperature varied around 84 F. and even dropped as low as 80 F. These references were all that could be found of definitely recorded cases in children or infants.

Other observers agree, however, that the condition of low temperature is usually a serious one, and much more liable to be disastrous than a corresponding elevation above normal. Inquiry among my friends who also see many babies elicited the fact that temperature below normal is not so uncommon, but that the condition seldom lasts long and is almost always followed shortly by death. In other words the usual subnormal temperature is a terminal condition.

Suppose we now inquire what are the sources of heat, and how an even temperature is maintained in the human body. It is probably unnecessary to mention that physiologists agree that the origin of the body heat is the oxidation of the food materials taken in. Just where this oxidation takes place is not well understood. There is little doubt that the energy manifested by the activity and work of the muscles, both voluntary and involuntary, is an important factor in heat production. This heat is distributed by the fluids of the body to its various parts and members. Heat production, then, in the muscles is controlled by the nervous system and, correspondingly, heat loss is regulated by the vasomotor and by the respiratory nerves. All of these various acts of heat production and heat loss are undoubtedly under the control of the heat center in the brain, which constantly exercises its governing influence. Thus we have the condition of a steady, even body temperature most highly developed in man, who, of all the animals and in spite of environment, maintains in health a constant temperature which varies but a minute fraction day after day and year after year.

In infants, however, this fine regulation is far from perfect and is easily disturbed. Thus we find slight causes creating greater disturbances in the child than in the adult.

Let us consider what are the causes of continued depression of temperature. These may conveniently be grouped under four heads:

1. Insufficient heat production.
2. Excessive heat loss.
3. Disturbed heat regulation.
4. Diseases of metabolism.

Under the first heading, insufficient heat production, may be classed those cases due to starvation or stenosis, to infantile atrophy or athrepsia, to the condition of prematurity, to inanition and to inactivity. Under the second, excessive heat loss, we place those cases caused by loss of body fluids, as in severe diarrheas or hemorrhages, also perhaps certain skin diseases. Under the third head, disturbed heat regulation, are the cases occurring in disease of the heart and nervous system, those due to drugs, to unconsciousness and to intoxication. The fourth head includes certain diseases of metabolism such as anemia, diabetes, and myxedema.

The first group of causes, namely, starvation, atrophy, prematurity and inanition are perhaps more likely to affect young infants and are often the cause of subnormal temperature.

One can easily understand also, how the loss of a considerable amount of fluid from the body, as in diar-

rhea or hemorrhage would, at the same time, lower the body temperature. The diseases of the skin in which the temperature is lowered are sclerema neonatorum, large or excessive burns and perhaps, also, severe cases of pemphigus.

Among the drugs which cause a temperature below normal are the general anesthetics, such as ether and chloroform, also nicotin and morphin. Alcohol, contrary to former views, does not raise temperature but depresses it, as I shall show later. It acts thus because it increases heat loss by superficial vascular dilatation and diminishes heat production by limiting muscular activity. Possibly, also, the heat center is directly affected by alcohol.

There seems to be some relationship between consciousness in an individual and a steady temperature. For do we not often find a subnormal temperature after the use of general anesthetics and of hypnotics, and also in profound sleep or concussion of the brain, in severe collapse or in the last stages of a fatal disease? In myxedema it is not at all uncommon to find a subnormal temperature and this has also been observed in diabetes and severe anemia.

It is perhaps needless to emphasize the fact that great care must be used in taking the temperature in infants and also in recording it, so as to make the record accurate and valuable. In infants the rectal temperature is undoubtedly the most reliable and this was the method employed in the case here reported. The various temperature readings in this case were all taken and recorded by trained nurses accustomed to the work and when the figures seemed especially low, another trial was made with a different thermometer, so that I am quite sure the temperatures, here recorded, may be depended on.

REPORT OF CASE

The history of the case I desire to report was as follows:

The babe was a 3-months-old girl when she first came under observation. The father had poor health, was an alcoholic and died of delirium tremens two months before the babe was born. The mother was in good health and this was her first and only child. She worked up to within four days of the birth. Labor was not difficult, lasting only three hours.

The babe was never strong and was breast-fed only three weeks. Then began artificial feeding, first malted milk, later condensed milk. She did not take the food well and had to be fed with a spoon. The baby's birth weight was not known but at 1 month of age she weighed 5¼ pounds. She began to get thin when 6 weeks old and continued getting thinner until her admission to the hospital, when her weight was 4¼ pounds.

There was some gastro-intestinal indigestion on her entrance to the hospital, shown by occasional vomiting, undigested stools, etc. This, however, soon cleared up under a proper diet and daily colonic flushings.

The infant remained at the hospital for nearly five months, during which time the temperature was more or less continuously subnormal, on one day going as low as 89 F. and frequently reaching 92 and 93 F. It was the exception for the temperature to reach 98 or 99 F., and only a few times did it go above those figures. For one whole week it was below 96, varying for the most of that time from 92 to 94.

The babe was fed a mixture of fresh cow's milk and water, the caloric value regulated somewhat as to the child's weight. She was either too weak or had no desire to suck her food through the nipple, for most of the time she was fed by a spoon or through a stomach-tube. The stools showed usually that digestion was good. The weight increased very gradually from 4¼ pounds on admission to 5½ pounds when discharged.

The child may have been syphilitic but an inunction of mercurial ointment daily for two weeks made no permanent effect on the temperature curve.

3. Loughran, F. W.: *Pediatrics*, January, 1908.

As illustrating the harmful effects of alcohol in such cases, it may be of interest to mention that small amounts of whisky varying from twenty minims to two drams were given on six successive days when the temperature began to be low, with the expectation of raising it thereby. But, on the contrary, it fell to 92 and on the two days following remained continuously below 93. Later the whisky was tried again and from the sixty-fourth to the seventy-first day about one dram was given daily, when the temperature declined rapidly and, on the third day following, reached 89 F., the lowest observed.

External heat in the shape of hot-water bags was applied continuously for two weeks at first, without appreciable effect. A hot-water bath at a temperature of 105 F. was also tried daily for ten days, but with no permanent change noticed.

When the child was 7½ months old it left the hospital and has been lost track of; but it was apparently doing as well as usual, when it left, and was gaining slowly in weight, although the temperature was still the subnormal type.

The interesting question is, what the cause was of the continued low temperature in this case? I think it would come under the first heading in our classification, that of incomplete heat production. No doubt the condition of inanition had much to do with it. The inactivity also was a cause. The child was not active and playful as other healthy babes are, but would lie quietly in one position much of the time, making almost no disturbance and crying little. Although several months old it resembled the premature infant, because it had to be fed by hand; it was quiet and passive and lacked the life and vigor of a normal child.

The question has been raised whether or not there is anything in this condition analogous to the state of hibernation in animals. I find on looking it up that the hibernating state also is not fully explained or understood. Pembrey⁴ says that during hibernation the temperature of so-called warm-blooded animals is much depressed resembling that of the cold-blooded animals; also that respiration and heart action almost stop and that absolutely no food is taken. There is an intermediate stage, however, when the animal is listless and inactive and with a body temperature below normal. In this condition its power of heat regulation resembles an immature mammal.

We cannot carry the analogy far, however, for the subnormal temperature and the inactivity are the only points of resemblance and, unlike the hibernating animal, this child's respiration and heart-beat were active and food was taken regularly.

My reasons for presenting this subject are, partly, the desire to place on record an unusual case and, partly, the hope that the discussion may bring out something further as to the causation and treatment of cases of subnormal temperature.

1230 East Sixty-third Street.

ABSTRACT OF DISCUSSION

DR. J. S. LEOPOLD, New York: I should like to ask Dr. Cheney how much the patient gained in weight during the period of observation? I have seen several of these cases of subnormal temperature in infants and the picture in this case seems to me to resemble very closely what is known in America as atrophy, and what Finkelstein calls "decomposition." There is loss of weight, subnormal temperature and at times collapse. The temperature usually becomes normal as soon as the weight curve remains stationary. Often subcutaneous injections of saline solution do good in these cases and bring the temperature up to normal.

DR. GODFREY R. PISEK, New York: I saw in consultation one of the cases the author cited. The case was one of infantile

atrophy. The temperature was 84 F. I remember I had to get a dairy thermometer to take the temperature. In that case all manner of expedients were tried to increase the temperature, but they failed. Hot-water packs, hot colonic flushing all failed, and in forty-eight hours the child died. In this case the condition of subnormal temperature had probably existed and been unnoticed for several weeks. These cases can be accounted for by profound disturbances of metabolism.

DR. WILLIAM J. BUTLER, Chicago: I believe the doctor mentioned one case of tuberculous meningitis running a subnormal temperature. I think it is rather the exception to see a subnormal temperature in these cases, although it is often but little above normal. I recall seeing a case of what was apparently meningitis running a subnormal temperature. In that case the temperature was subnormal all of the time; about 96 F. was as low as it went. There was dulness in the right apex. I thought it was either hemorrhage into the posterior fossa or a tuberculous meningitis with subnormal temperature. The middle ground was taken that it was possibly a combination of both, and the post-mortem showed tuberculous meningitis and hemorrhage into the cerebellum. In this case there was arteriosclerosis, with its associate heart changes, and struma of one suprarenal.

DR. FRANK GENGEBACH, Denver: What was the condition of the pulse, the result of examination of the heart and the appearance of the skin as regards cyanosis?

DR. H. W. CHENEY, Chicago: There was no loss of weight; the child made a gradual gain, weighing 5½ pounds when it left the hospital. As to the administration of some of the sodium salts, I think in another case I will try it, as they are said to cause a rise of temperature in infants. As to the heart action and condition of the skin, the pulse itself was about what would be normal for a child of that age. The skin was somewhat anemic, such as we can expect to find in an atrophic child like that, but there was no cyanosis. As to other measures, Dr. Coit says that he keeps these babies in a separate room with a temperature at 75 or 80 F. This baby was kept in a room with other children. Possibly an incubator might be tried with satisfaction.

IN MEMORIAM: WILHELM MEYER*

HOLGER MYGIND, M.D.

Professor of Laryngology in the University of Copenhagen
COPENHAGEN, DENMARK

My first words to-day must be words of thanks to the chairman of the Section on Laryngology and Otology of the American Medical Association, Dr. Chevalier Jackson, and to the other members of the committee for the honor they have shown me by inviting me to this session and asking me to read a paper here.

Permit me to say that it is a great and heartfelt pleasure for me to be among you and to meet so many confrères, whose names have for years been familiar to me; above all I appreciate the opportunity of seeing again the faces of old and faithful friends, though, alas! I miss some, who, having completed their appointed task, are now at rest.

It is, however, not without considerable hesitation that I have accepted your kind and gratifying invitation, for I have but little news to tell you with regard to our specialty—a specialty in which America occupies so prominent a position—but I feel that the attention paid by you was not only to myself but to the Danish school of laryngology founded by my late dear and honored master, Wilhelm Meyer. Such being the case, it may not seem inappropriate if, before speaking on more special and scientific topics, I give you a brief sketch of the life

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

of that great otologist, to whom we are all so deeply indebted. Would the manner were worthy of the matter.

Wilhelm Meyer was born in 1824 in the Danish town of Fredericia, where his father was a regimental surgeon in the Danish army.

In 1826 the family removed to Glückstadt in Holstein. Here Meyer passed his childhood and youth until, in 1843, he entered the University of Copenhagen as a student. Meyer's mother came of an old Danish family and she remained faithful to her native land until her death; his father, who was born in Eckerförde in Holstein, and the remainder of the family were distinctly German in their sympathies. Accordingly, on his return to Glückstadt after completing his studies in Copenhagen, Meyer found the greater part of his family circle hostile to Denmark.

For some time he assisted his father in his private practice in Glückstadt and while thus engaged caught scarlet fever. It was during the period of his convalescence after this illness that the insurrection against Denmark broke out in Schleswig-Holstein (1848). Meyer's father, to whom he was tenderly attached, immediately left the Danish army and joined the Germans, and it was doubtless owing to his persuasion that his son was induced to enter the insurgent army as a surgeon, the attack of scarlet fever having prevented his return to Denmark at the outbreak of war. Later he was, however, a Dane with his whole heart, and, as I have often heard him assert with warmth, loved his native country truly.

As a student at the University of Copenhagen, where he took the highest honors attainable, Meyer had greatly distinguished himself, and on his return to Copenhagen after the war of 1848-50 he was offered a position as physician at the University Hospital by Professor Fenger. But so bitter was the feeling against him at that time that the students called a general meeting to protest against any public office being filled by one who had served in the insurgent army. Meyer was thus shut out forever from that brilliant university career which his talents would undoubtedly have procured him.

After this he travelled for some time, visiting various European universities, studying principally internal medicine and forming friendships with many foreign colleagues which were to prove of lifelong duration. In 1853 Meyer established himself as a general practitioner in Copenhagen. At first he had a hard struggle, but it was, as at all times during his career, in unremitting labor that he found both his compensation and refuge. During this period he produced his first scientific work on "Bread, Especially Rye Bread," an extensive essay, principally remarkable for its thoroughness—one of Meyer's most characteristic qualities. By degrees his circumstances improved, clients became more numerous, and in course of time he became one of the most sought-after of private practitioners in the whole of Copenhagen.

It is, however, as an otologist that Meyer will be remembered, and, as he has often told me, it was his pity for suffering humanity that first attracted him to this specialty. In his extensive practice he constantly came across patients whom deafness, buzzing and pains in the ear had rendered almost desperate. Such patients the majority of the medical men of that period were only too glad to get rid of as quickly as possible, considering the ear to be a *noli me tangere*, and for which no treatment was possible beyond the ordinary syringing with water or dropping in of warm milk and oil. In the hope

of rendering some assistance to such unfortunates Meyer made an exhaustive study of the otologic literature then existing, and, purely self-taught, he became by degrees one of the greatest otologists of his time.

It was while engaged in the treatment of ear diseases that Meyer made the discovery of the adenoid growths, a discovery which for all time will be associated with his name. On Oct. 22, 1867, a young girl came to his surgery to be treated for deafness. Meyer observed that in this case nasal respiration was almost totally impossible, even after treatment for chronic catarrh of the nose and of the throat, which did not alleviate the deafness. He came to the conclusion that respiration was impeded by causes to be sought for in the nasopharynx, and he therefore explored this cavity by passing his finger up behind the soft palate—which, strange to say, no one had done previously—and he found the nasopharynx full of peculiar swollen growths, on the removal of which respiration became perfectly free and the hearing improved.

Meyer now began to suspect that these growths were the cause of the patient's deafness, and on examining other patients with ear trouble found in several the same conditions in the nasopharynx. He continued his researches with characteristic patience and energy, and in 1868 published his first article on the subject in the Danish medical paper *Hospitals-Tidende*. In 1869 Schmidt's *Jahrbücher* had a report on this article, and in 1870 Meyer published his further investigations in *Medicochirurgical Transactions*, without, however, attracting much attention to the subject.

In 1873 Meyer published his classical description of "Adenoid Growths, Their Etiology, Pathologic Anatomy, Symptomatology, Consequences and Treatment" in the *Archiv für Ohrenheilkunde*, earning now for his discovery universal recognition and for himself undying fame.

Besides shorter articles relating to his specialty Meyer wrote an excellent paper in the *Archiv für Ohrenheilkunde* demonstrating the importance of necrosis of the walls of the tympanic cavity as an etiologic factor in chronic suppuration of the middle ear.

Great as he was as a physician, Meyer as a man was even more worthy of admiration, uniting, as he did, the highest qualities of head and heart. A remarkable memory, strong power of observation and a keen critical faculty bore witness to his superior intellectual powers. The last he employed impartially and so ruthlessly was he wont to criticize his own literary productions that authorship cost him an immense expenditure of time and labor. He therefore wrote seldom and unwillingly. I may mention in this instance that he was eighteen months writing his paper on the history of otology in Schwartz's large "Handbuch der Ohrenheilkunde," although it is only forty-eight pages in length. He first wrote a long and comprehensive essay, which he condensed and abbreviated twice before reducing it to the length desired for the "Handbuch." This little work is, however, justly esteemed a standard work, both on account of the learning it evinces and of the purity and polish of the style.

To these great intellectual powers Meyer added an almost unique industry and power of application. He was absolutely never idle. After a long and arduous day's work he would sit up far into the night reading not only medical works, but also works on all subjects which could interest the cultured mind: natural science, philosophy, literature, religion, etc. His knowledge was marvelous. He was an enthusiastic lover of music and

no mean performer on the piano. As an astronomer he was more than an amateur, and many a summer and winter night has he spent studying the heavens through his large telescope. Finally, I may mention those wonderful linguistic gifts, which, as some of you may remember, aroused such universal admiration among his colleagues at the International Medical Congress in Copenhagen in 1884.

But noblest of all was that warm and faithful heart, which, beating under a seemingly formal and cold exterior, endeared him to all who had the good fortune to become intimate with him. To his patients he was always the tender and self-sacrificing physician for whom no labor was too wearisome. He was a faithful friend whose value was especially felt in adverse fortunes, and, though severe toward himself, he was always exceptionally lenient in his judgment of others.

Meyer married, at the age of 46, Catherine Jane Emerson, a widow, by birth Baroness de Bretton, a relation of Sir Lytton Bulwer. By her he had three children, all of whom are living. His son is a medical man in Copenhagen.

It was during a journey in Italy, in 1885, undertaken after a severe attack of influenza, that Meyer, who was then 71 years old, contracted the typhoid fever which in the brief space of a week brought the seemingly healthy man to his grave. His body is interred in the beautiful island cemetery at Venice, a fitting resting-place for one who ever loved the sea and had made his much-loved summer home on the very verge of the beautiful Danish Sound, so that the music of the waves might be ever in his ears. Of all who loved him—and they were many—none but his wife, who died a few years later, and one daughter had the privilege of following him on that last solemn journey over the silent waters of the lagoons. A simple stone marks his last resting-place.

The medical profession, however, felt that to the memory of so distinguished a member honor was due, and at the initiative of Sir Felix Semon a monument was erected in Copenhagen by subscription from all parts of the world as a graceful tribute to one of whom I can truly say:

He was a man, take him for all in all,
I shall not look upon his like again.

OBSERVATIONS ON THE VOCAL CORDS IN ONE THOUSAND CASES OF GOITER *

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ROCHESTER, MINN.

My report is made on the observations of the vocal cords in 1,000 cases of goiter examined during the past two years. About 95 per cent. of the patients were operated on; all were examined before operation and re-examined after operation.

The anatomy of the larynx may be passed over with the exception of the motor nerve supply of its intrinsic muscles, which will be considered only with reference to liability to paralysis from pressure by enlargement of the thyroid gland.

The cricothyroid muscles, which are the tensors of the vocal cords, are supplied by the external branches of the superior laryngeal nerves from the pneumogastrics. These branches enter the muscles so high that only the largest lobes, which extend unusually high on the throat,

can exert pressure on them. All the other muscles, including abductors, adductors and decreasers of tension, are supplied by the recurrent laryngeal nerves, which also arise from the pneumogastrics. These opposing muscles are supplied by different fibers which merely travel in the same nerve trunk, either set of which, or all together, in any degree may be subject to paralysis.

In this series of cases, as well as in the observations of others, it appears that the fibers supplying the abductor impulse to the posterior crico-arytenoid muscle are the most readily affected by pressure.

The right inferior laryngeal nerve arises at the level of the right subclavian artery and, winding around that vessel, passes upward in the groove at the right side of the trachea and esophagus and enters the larynx at the edge of the cricoid. The left inferior arises at the level of the arch of the aorta around which it passes and ascends on the left in the same manner as the right inferior nerve. The relation of the left laryngeal nerve to the aorta and its longer course account in part for the fact that it is more frequently affected by local pressure. Moreover, the position of the esophagus to the left of the median line forces the nerve to take a position more exposed to pressure, especially at the level of the thyroid gland.

EXAMINATION OF CASES

In the examination of 1,000 cases there were found seventeen with paretic affections of both cords, ninety-three of the right cord and 162 of the left, making a total of 289 partial or complete paralyses in 272 individuals. Total paralysis of the right cord occurred eighteen times; of the left, thirty times. Partial or complete abductor paralysis of the right occurred fifty times; of the left, eighty-three times. Partial loss of both motions of the right occurred thirty-eight times; of the left, sixty-two times. Bilateral tensor paralysis occurred in four cases.

In classifying the cases as to the size of the right, median and left lobes, a division was made for each one-half inch in diameter. It was found that paretic conditions of the right cord increased from 5.3 per cent. in 226 cases with small or non-palpable right lobes to 25 per cent. in eight cases with lobes over 5 inches in diameter. Abductor paralysis and partial paralysis of both movements increased more rapidly in goiters ranging up to 3½ inches in diameter, and then gave place to a relatively greater increase of total paralysis. The left cord showed 10 per cent. of paresis in the goiters with small left lobes, increasing to 47 per cent. with those over 5 inches in diameter. There was a still more marked tendency for all affected cords to become totally paralyzed as the lobes became larger. This occurred in five of fifteen cases. Even great enlargement of the median lobe alone was seldom associated with affections of the cords. Total paralysis occurred in but two such cases; bilateral tensor paralysis in four, and minor affections in nine. In nearly every division, except that of the largest lobes, abductor paralysis, either partial or complete, was the lesion most frequently seen.

Although the average frequency of symptoms of pressure on the nerves was directly proportional to the size of the lobes, there were exceptions. For example: paralysis occurred when the corresponding lobe was not palpable. On the contrary, in some cases which had the most tremendous enlargement of the lobes, displacing and distorting the larynx and the trachea, there was no apparent effect on the movements of the cords.

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910

In a series of 100 consecutive cases in other than goiter patients, or patients coming on account of laryngeal symptoms, there were found one case of total paralysis of the left cord without noticeable symptoms, one case of partial and one of complete abductor paralysis, and two of partial loss of both motions of the left cord. In one case only, the right cord showed a deficiency of both motions. These patients were more than normally liable to affections of the cords, since most of them came for other pathologic conditions in the nose and throat. But, since goiter patients are also especially affected by diseases of the nose and throat, it might be considered proper to deduct from the percentage due to goiter the 6 per cent. found in these cases. This would, in cases of slight enlargement of the thyroid, make the percentage for the right and left cord nearly equal, while in cases of greater enlargement the left cord would still show a relatively greater tendency to paralysis from pressure, probably on account of the more exposed position of the left recurrent laryngeal nerve.

The position of the lobes is quite as important as the size of the goiter, since, for goiters of the same size,

RESULTS OF OPERATION

In five cases the partial paralysis observed before operation had disappeared after operation, showing that the pressure must have been of short duration and not sufficient to cause permanent degeneration of the nerve. In eight cases of partial paralysis following operation, probably due to the pressure of edematous tissue in the region operated on, later observations showed complete recovery. Twenty-two case of partial paralysis following operation were observed but once, so that the ultimate result was not ascertained. In several cases with disturbance of phonation after operation, positive diagnosis could not be made between paralysis and edema.

Twelve cases of total paralysis followed extirpation of the lobes; three of these were malignant. Two cases followed ligation of the thyroid artery. In four of these cases aphonia appeared two or three days after operation, indicating that the cause was pressure and not section of the nerves, and therefore that the prognosis was good. No patient with total paralysis, observed either before or after operation, was seen to have recovered, though, through lack of opportunity for reexamination

TABLE OF OBSERVATIONS IN CASES OF GOITER

			1,000	Paralysis.		Paresis.	Abductor.		Tensor.
Number of cases.....			289	Right 18.....		38	50	4	
Cords affected (Right 110, Left 179).....			262	Left 30.....		62	83	4	
One or both cords affected.....			17						
Bilateral.....									
RIGHT CORD									
Size in inches.....	0-1	1-1½	1½-2	2-2½	2½-3	3-3½	3½-4	4-5	5+
Number cases.....	226	159	152	141	138	85	70	21	8
Cords affected.....	12	13	14	14	17	18	15	5	2
Number per cent.....	5.3	8.1	9.2	10.0	12.5	20.6	21.3	23.8	25.0
Paralysis.....	1	0	0	3	3	2	5	2	2
Number per cent.....	0.5	0.0	0.0	2.1	5.1	2.3	7.1	10.0	25.0
Abductor.....	6	7	8	5	7	9	6	2	0
Number per cent.....	2.7	4.4	5.2	3.5	5.1	10.3	8.5	10.2	0.0
Both motions.....	4	5	5	6	7	6	4	1	0
Number per cent.....	1.8	3.2	4.4	4.2	5.1	7.1	6.7	5.0	0.0
LEFT CORD									
Size in inches.....	0-1	1-1½	1½-2	2-2½	2½-3	3-3½	3½-4	4-5	5+
Number cases.....	259	155	183	146	104	65	52	21	15
Cords affected.....	28	19	27	29	26	20	15	8	7
Number per cent.....	10.8	12.2	14.7	20.0	25.0	30.7	28.8	38.0	46.6
Paralysis.....	3	1	3	4	3	2	5	4	5
Number per cent.....	1.1	0.6	1.6	2.7	3.0	3.1	9.6	19.0	33.3
Abductor.....	11	10	13	15	13	10	6	3	2
Number per cent.....	4.2	6.0	7.1	10.0	12.5	15.3	11.5	14.3	13.3
Both motions.....	13	9	10	10	9	7	4	1	0
Number per cent.....	5.0	5.2	6.6	6.8	8.6	11.8	7.7	5.0	0.0

affections of the cords are much more frequent in those cases with lobes located near the clavicle, especially if all or a portion of the goiter is intrathoracic. Exceptions to this are the cases in which the large lobes extend so high as to reach the external branch of the superior laryngeal nerve. This condition occurred in four cases which showed bilateral tensor paralysis caused by large, high median lobes. Firmness is likewise important, since small, hard lobes are more apt to injure the nerves than larger soft lobes.

Long duration of the goiter increases liability to vocal paralysis, probably because as a rule the older cases have the greater enlargement. Apparently there is also an additional danger from long-continued pressure.

Men are about three times as liable as women to paralysis from goiters of the same type.

Exophthalmic goiter does not differ materially from other forms of goiter in its effects on the vocal cords, except in cases of extreme hyperthyroidism, in which its effects are evidently increased as a direct result of general wasting of muscular tissue.

The age of the patient has no demonstrable relation to the pressure on the recurrent laryngeal nerves except that goiters of large size and long duration are more frequently found in older individuals.

after the lapse of considerable time, such recovery might have escaped notice.

The frequency of parietic conditions, often without change of voice or other symptoms, emphasizes the necessity for careful laryngoscopic examination of all cases before operation. This is important, since it is essential to the prognosis of postoperative lesions and might be especially valuable in some cases, as showing the possibility of repairing damage by suturing the nerve severed during operation. Moreover, a beginning paralysis of the laryngeal muscles, apparently due to the pressure of the goiter, would be an indication for early operation in order to prevent complete and permanent degeneration of the nerve.

ABSTRACT OF DISCUSSION

DR. W. B. CASSELBERRY, Chicago: Elsewhere I have advocated the examination of the larynx in every case of goiter and have stated that paralysis, leading toward impairment of the voice, might be the determining factor in advising an operation for removing the bulk of the thyroid. There are so many cases in which there is hesitancy, where it is doubtful whether the patient should take the risk of operation, the symptoms not being extremely urgent, that if the vocal cords are examined and impairment of one or both observed it would plainly justify operation. I have had a case operated under these circumstances. Nowhere in the

literature have we reports of such numbers of accurately observed cases. The essayist referred to one point that I would ask him to be a little more explicit, that is, whether he noticed preliminary paralysis of those nerves which cause the vocal cords to separate, thus permitting the closure of the glottis with dyspnea, to precede for a time the total paralysis of motor innervation. This greater vulnerability of the abductor fibers of the recurrent laryngeal nerve is known as Semon's law. I have noticed it in cases of compression of the nerve by aneurysm of the aorta. Even though the paralysis be one-sided, if that cord is fixed in the closed position, and there is a little swelling of the other side as from the "cold," dyspnea is produced. I would also ask whether he has observed from pressure by goiter a paroxysmal barking cough, which I have observed from pressure on the laryngeal nerves by enlarged lymphatic glands, especially by one gland located on the right side almost under the clavicle.

DR. GEORGE F. COTT, Buffalo: I should like to call attention to the fact that in the removal of the thyroid, either partial or total, it is almost impossible to tell whether you are going to have paralysis on one side or not. It is sometimes impossible to find the thread-like nerve, especially if you have a good deal of bleeding; you are liable to include the recurrent laryngeal or to injure it. You may get paralysis days or weeks afterward, which, however, usually recovers. It does not always depend on the expertness of the operator either. The best men get a certain percentage of paralyses. I know a number of men who are most expert who have had this happen. I have had in twenty cases one case of paralysis that I know of and I think the reason I haven't observed more is that I did not examine the larynx in the others.

DR. HENRY HORN, San Francisco: The essayist did not speak of a preliminary bronchoscopic examination of these patients, so I suppose it was not carried out. It would have been of extreme interest and I think it is going to be one of our preliminary methods of examination in all cases of struma. I hardly feel competent to speak of the surgical treatment of struma, but in certain cases of large cystic goiter where there is dyspnea it is often a question to know how much to remove. If the bronchoscopic examination shows a half circle formation we know from the start that the operation can be made on that side and afterwards the cystic tumor on the other side will come to the middle and there will not be so much deformity. It is a bad term to use "bronchoscopic examination" for these cases as it is not necessarily that, but a tracheoscopic examination. It is an exceedingly simple procedure to pass the small tube of the tracheoscope in far enough to examine the sub-glottic region, and it seems to me that it is a means of diagnosis that should not be overlooked. There are three cases, so far as I know, of what is called tracheal struma and the second was diagnosed by means of the bronchoscope. For these reasons I hope that a great many will acquire enough experience to make such a diagnostic examination, which I consider entirely justifiable. In fact, I believe a great many general physicians will find these examinations much easier than the use of the laryngoscopic mirror, for there are still many general practitioners who cannot use the mirror satisfactorily.

DR. GEORGE PAUL MARQUIS, Chicago: Carrying out the idea the last speaker has given us, I think a great many diagnoses as to whether these cases of struma are operable, and as to the extent of operation advisable, can and should be made by means of the bronchoscope. I have during the past winter made several examinations for some of the Chicago surgeons for this purpose. In one case a diagnosis was made by the bronchoscope in which there was no enlargement of the gland on the outside, and by direct laryngoscopy I could not see any involvement, but on using the tracheoscope I found the condition about two inches below the vocal cord. The operation was performed by the surgeon and it was found that there was a lobe pressing from the posterior surface of the trachea. This diagnosis could not have been made in any other way.

DR. JUSTUS MATHEWS, Rochester, Minn.: As to Dr. Casselberry's question with regard to the comparative frequency-

of abductor paralysis, it occurred in 133 cases of my series while partial paralysis of both cords occurred in only 119. But while abductor paralysis was much the more common, I found in only a few cases abductor spasm associated with it. I attribute this to the gradual increase of pressure due to slow growth of the goiter which did not produce sufficient irritation of the abductor fibers to cause spasm. I found it in about eight or ten cases. Cough, associated with abductor paralysis, was not a rare condition, though not common. I found it, I believe, in at least fifteen cases. It was necessary to make a differential diagnosis between cough due to nervous irritation and cough due to colds or bronchitis, with relation to the giving of an anesthetic. The indication being to operate immediately in case of the former and to delay operation in case of the latter. We rarely, if ever, used the bronchoscope or tracheoscope in the examination of goiter patients, since most of them were to be operated on and the exact condition could be more accurately diagnosed at operation, and the passing of instruments would result in more or less inflammatory reaction that might delay operation. Our patients are practically all non-residents and anxious to be operated on and go home, so we make no unnecessary manipulations that might delay operation.

THE CURRENTS AT THE EASTERLY END OF LAKE ERIE AND HEAD OF NIAGARA RIVER*

THEIR INFLUENCE ON THE SANITATION OF THE CITY OF
BUFFALO, N. Y.

GEORGE EDWARD FELL, M.D., F.R.M.S.
BUFFALO

Buffalo for many years has taken its water-supply from an intake near the center of the Niagara River, near its head at Lake Erie. The current at this intake runs from 7 to 9 miles per hour, carrying "220,000 cubic feet per second," which was considered at the time of the location of the intake as a valuable factor, influencing the character of the water through its rapidity. A location much nearer to the American shore or Bird

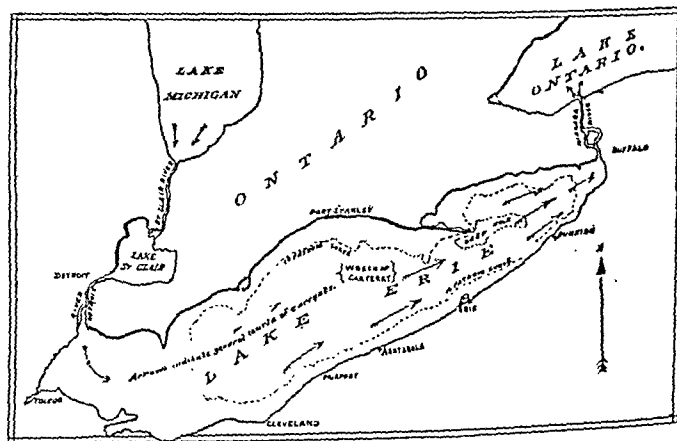


Fig. 1.—Chart of Lake Erie, trend of current easterly. The body of one of the victims of the wreck of the car ferry, shown in the illustration, was found in the Niagara River three or four months after the disaster. It had floated eastward with the current.

Island pier was recommended by one of the engineers, but fortunately for the future of the sanitation of the rapidly growing city this was not adopted. The general course of the currents at the head of the river and in the lake had virtually nothing to do with the question of location. To the southward the sewage of the city was thrown partially into Buffalo River, which in its

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

current course down the Niagara runs with its contaminated water close to the American shore and gave most positive proof of its virulent nature (Figs. 1, 2, 3, 13 and others).

From the following account of the typhoid fever epidemic (Buffalo, 1894) it is seen how quickly an epidemic can be produced by contaminating the water supply of a great city. In the month of January, 1894 (official reports), there were twelve cases of typhoid fever in the city; in February eleven cases. Fine ice coming down the river clogged the entrance to the intake in the middle of the river. In the emergency, and as a provision in case of a large fire, the Bird Island inlet (No. 13) at the easterly side or shore of the Niagara River was opened and more or less of the waters of the contaminated Buffalo River pumped into the water-supply in March, 1894. The number of typhoid fever cases

westward of the long series of United States breakwaters, which the charts indicate (Figs. 3 and 4 with and without the breakwaters).

CONDITION WHICH BROUGHT ABOUT THIS INVESTIGATION

On the charts (Figs. 2, 3, 4 and 5) will be noted the location of Smoke's Creek, and the Lackawanna Steel Plant, which was under construction when, in the fall and winter of 1903, an epidemic of typhoid fever broke out along the banks of the creek where the laborers were living under deplorable conditions.

Happening at the same time as the noted epidemic at Ithaca, N. Y., the conditions were considered somewhat parallel by many prominent physicians. One prominent physician said, (so reported), "What they have experienced at Ithaca we are liable to experience at any time from the same condition." A representative of the state board of health reported, "Existing conditions were excessively dangerous to residents of the immediate neighborhood, and to the people of Buffalo."

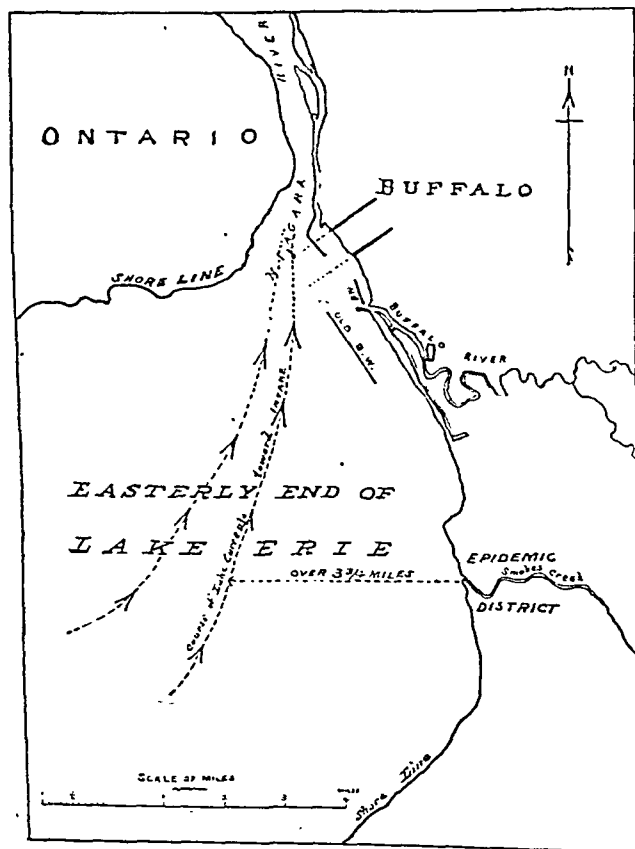


Fig. 2.—Eastern end of Lake Erie, City of Buffalo and head of Niagara River.

jumped from 11 cases in February to 510 cases in March. As soon as the cause of the epidemic was discovered and the shore intake closed, the cases decreased in number, so that in June, 1894, but 15 cases were reported by the health authorities. Just remember this when we discuss the possibility of throwing an entire winter collection of typhoid epidemic debris into the same water-supply.

Now to indicate that the water of Lake Erie to the southward of Buffalo and about a mile out in the lake is clinically, and virtually bacteriologically, pure, we note that the intake of the western New York water works, from which the supply to the community of Father Baker, numbering several thousand, has been supplied for years, has never known a case of typhoid fever. This is the character of the water according to the testimony of the currents which dominate the area directly

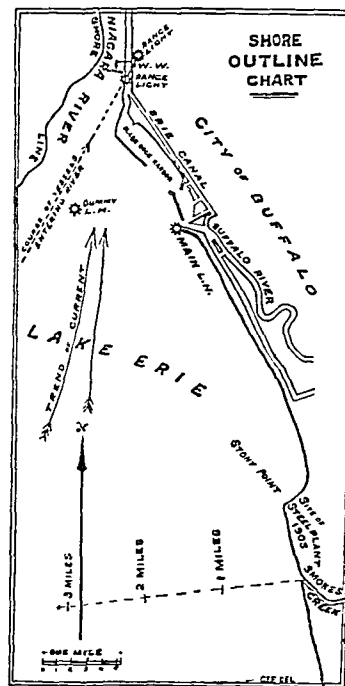


Fig. 3.—Shore outline chart, from Smoke's Creek, the epidemic district to Buffalo Water Works intake.

The health commissioner of the city, and 90 per cent. of the physicians of the city through newspaper interviews voiced but one opinion, and that was of positive and certain great danger when the spring freshets carried the debris from the typhoid district at Smoke's Creek out into the lake. The epidemic of 1894, costing over a hundred deaths, was not forgotten. But the general belief was openly expressed in one of the most prominent newspapers of the city of March 1, 1903. The article was headed, "Buffalo's Peril and Its Source." A chart of the lake front on the front page of the paper, depicting the outflow from Smoke's Creek, coursing outside of the breakwaters (Chart 4 with breakwaters), and directly toward the intake, had the following description of the impending disaster:

The above map, showing the source of the city's water supply conveys a striking object-lesson to the people of Buffalo. Near the top is shown the pumping station, where water is drawn from Niagara River to supply the city.

At the lower end is seen Smoke's Creek, emptying into the lake its daily burden of pollution in the form of millions of disease-breeding germs, the drainage of the great steel plant colony at that point. The currents all set directly toward the point where the lake empties into the Niagara, and the outlying breakwalls direct this deadly filth-laden current toward the intake of the Buffalo Water Works. (Chart 4.) All winter long an army of laborers have been working at this point and living in improvised shacks on the premises. There is no sewerage, and slops and filth of every description have been dumped in immense quantities on the surface. With the first spring thaw this entire mass of pollution must inevi-

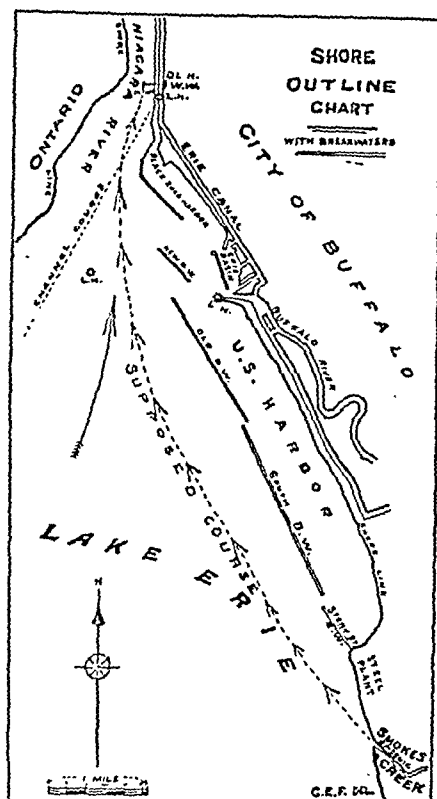


Fig. 4.—Shore outline chart, with breakwaters constructed by the U. S. Government, showing erroneously supposed course of currents from Smoke's Creek.

tably be washed into the lake, and no human power can prevent its being swept out into the Niagara River, pumped into the reservoir, and distributed with its burden of disease and death throughout the length and breadth of the city.

These reports naturally spread consternation in the city, gave the city a bad name abroad, kept industries away (so reported), and did great harm to the community.

When this agitation was its height, I questioned the truth of it, and stated to the editor of a leading paper that there was no reason for such a scare, that it was uncalled for, and that proper investigation of the currents of the lake and river would so demonstrate. My stand was actually ridiculed by one paper. I was berated for presuming to question the statements of the authorities as though an old citizen had no right to assist in protecting the community in which he lived, under such contingencies. It being a public matter, I gave to the public the following statement:

When a careful study is made of the currents at the head of the Niagara River it will reveal that we are not in any danger of having our present intake supply of water seriously infected with septic material coming either from Smoke's Creek or Buffalo River, not only in the spring freshets, but any time under existing conditions.

I was opposed *in toto* to the views of the great majority of our leading physicians and the state and city health authorities. But one physician, as I recall it,

Dr. Matthew D. Mann, of the hundreds interviewed, expressed the idea that the currents might avert the threatened disaster.

Through the assistance of the editor of a prominent paper I obtained the use of the little steam yacht *Empire* and its old engineer, and demonstrated to my satisfaction by preliminary experiments, the truth of my assertions. This was as far as I intended to proceed, as I had not time to give to a more complete investigation of the subject. The mayor of the city, Hon. Erastus C. Knight, knowing of my former experience as a hydrographic engineer, and believing there might be truth in my statements, requested the continuation of the work and gave it his unqualified support. This placed the work on an official basis. The investigations extended over three months of time and were carried on at considerable personal expense, which was never reimbursed.

PHYSICAL CONDITIONS

From ordinary observations of the geographical features and the arrangement of the breakwaters at the easterly end of the lake, it would appear on superficial examination that the littoral or shore current at Smoke's Creek would proceed to the west of the breakwater limits. It was found on observations of the current that it passes into the openings between the breakwaters, and that under the ordinary conditions existing when the lake is at normal height and when the gales from the west prevail, the American shore waters at the eastward end of the lake hug closely the easterly side of both river and lake. If Buffalo Harbor was a landlocked bay, with but one narrow entrance and no outlet, there would

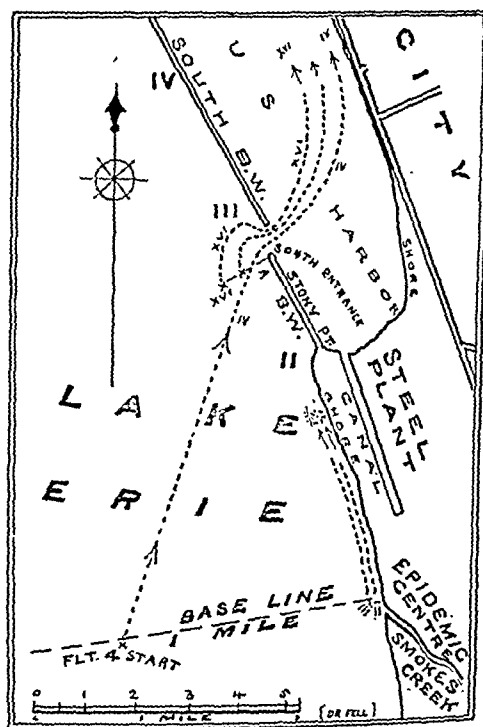


Fig. 5.—South channel entrance, showing actual currents.

be an ebb and flow, influenced entirely by the rise and fall of the lake level as at Erie Harbor (Presque Isle), Pa. At Erie Harbor when the lake rises the water rushes through the one channel opening into the bay at the rate often of 7 to 9 miles per hour, and when the lake falls it passes out as rapidly, according to the rapidity of rise and fall in the lake. This I know from personal observation. It is merely a question of water seeking its own level. But the condition at Buffalo is very different. We have the terrific outflow of Niagara Falls

exerting its power at the head of the Niagara (a flow of "215,000 cubic feet per second"). This flow is always to the northward—in one direction. The breakwaters act as barriers holding back the water until it reaches the openings between them, when it passes through, as our floats indicated, but not in sufficient quantity to equalize the level, or to make up for the continuous flow to the northward to the falls. Hence the condition is usually constant, even with sudden fluctuations in the water of the lake, which are usually slight.



Fig. 3.—View of south channel in distance from superstructure, Union Bridge.

DESCRIPTIONS OF FLOATS USED

The float consisted of two tin cans (Fig. 15) tightly sealed, each 3 inches in diameter by 6 in length, the lower one weighted sufficiently almost to submerge the upper one so that the wind would not influence it. The lower one was placed so as to float clear of the bottom of the lake, the observations thus recording the average

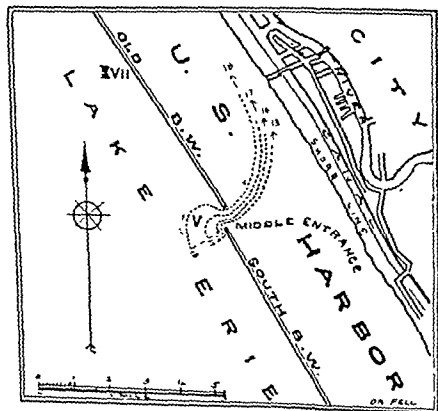


Fig. 7.—Middle channel entrance to U. S. Harbor. Actual currents.

current—not top or bottom current—of the water through which it coursed. Each float was followed by a policeman in a boat as an absolute necessity to keep track of it, throughout its full course. Many more observations than are depicted on the charts were made, all of which emphasized the fact that the currents follow the courses given in the charts.

Complete detail charts are provided showing the course of the current observations, covering the area influenced by the question at issue. They will be de-

scribed together with the detail of the course of the floats, beginning with those indicating the shore currents at Smoke's Creek, or proceeding from the south, northerly.

Observations were made when the lake was under normal conditions as to stage of water, and with light winds, the condition usually prevailing in the summer season.

To appreciate the import of this work it must be remembered that the generally believed course in a freshet of Smoke's Creek was that it would course out into the lake away outside or to the westerly of the breakwater, as shown on the chart (Fig. 4).

CURRENTS AT SOUTH HARBOR ENTRANCE AND SMOKE'S CREEK

Two floats were used here and placed 100 feet and 300 feet, respectively, from the shore at the mouth of the creek. In the course of five hours they had floated northward about parallel with the shore and about a quarter of a mile from their starting point (Fig. 5).

A float was placed one mile out in the lake from Smoke's Creek, and arranged to take in a depth of 28 feet of water. It passed into the South Harbor entrance, as shown by same chart, and what is significant—within a short distance of the northerly end of Stony Point breakwater. Floats located 200 feet, 500 feet and 1,000 feet westward of the north end of Stony Point breakwater passed into the inner or United States Harbor through the south channel entrance, and in a broad sweep well toward the eastern shore of the harbor (Figs. 5 and 6).

As the mass of water passing eastward through the south channel entrance is very many times more than

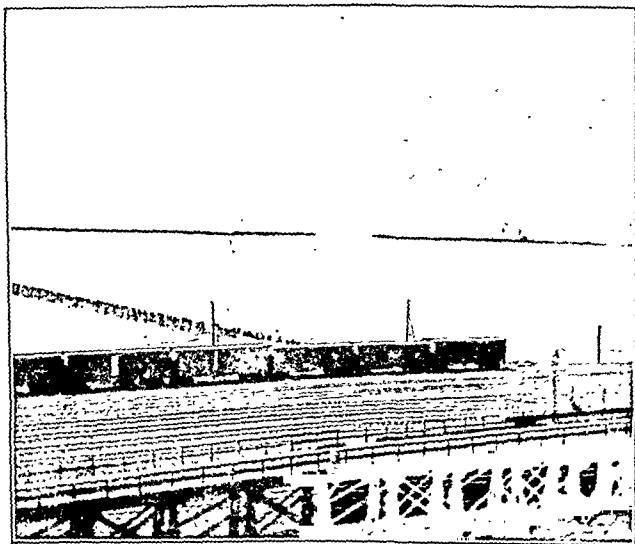


Fig. 8.—View of middle channel from roof of Export Elevator.

could possibly pass out of Smoke's Creek even when filled to its greatest capacity in freshets, it is reasonable to believe that material from Smoke's Creek does not pass north of the south channel entrance; also that the character of the water passing along the westerly side of the south breakwater is of same purity as that one mile out in the lake at Smoke's Creek. I have already indicated this by the clinical demonstration of the purity of the water used at Father Baker's establishment at West Seneca, which uses water taken from this part of the lake.

MIDDLE CHANNEL ENTRANCE

Floats of suitable depth placed 75, 150, 500 and 1,000 feet, respectively, westward of north end of the south breakwater passed into the United States harbor through middle channel entrance, and in a wide sweep to mid-harbor, before passing northerly toward the light house pier (Figs. 7 and 8). The conclusion here must be that water coursing along the westward side of the south

OBSERVATIONS NORTHERLY SECTION OF BUFFALO HARBOR
AND HEAD OF NIAGARA RIVER

Here we find a most extraordinary and interesting confirmation (Figs. 9 and 10) of the facts which we are forced by these observations of natural conditions to accept, namely, that no material from Smoke's Creek or Buffalo River gains access to the Niagara River intake under normal conditions of wind and weather mentioned, and, in all probability, under no abnormal conditions with which old lake residents, who have observed these waters for many years, of which I am one, are acquainted.

Float 1 (15-foot depth) started at a point 50 feet westward of the northerly end of old breakwater (red light), instead of passing to the northward, as many would believe, passed eastward and southward, fully 150 feet southerly of the north breakwater.

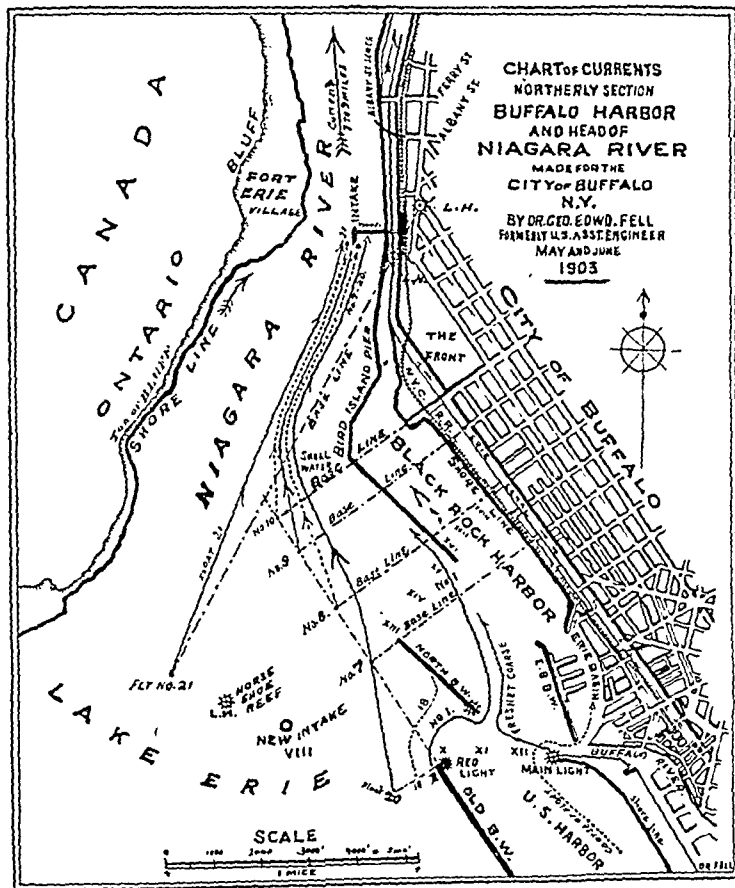


Fig. 9.—Chart, northerly portion of Buffalo Harbor, showing actual currents and main harbor entrance.

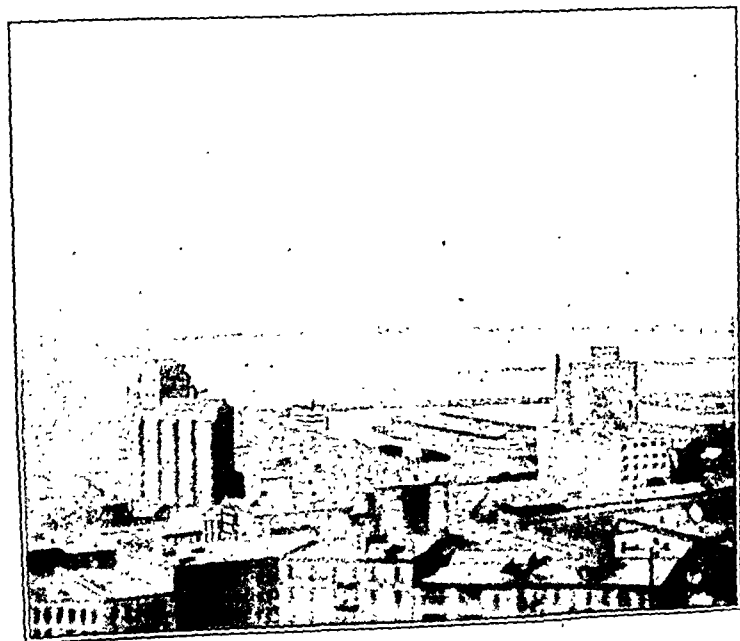


Fig. 10.—View of main harbor entrance from roof of Chamber of Commerce building.

breakwater, even as far west as 1,000 feet from the breakwater, passes into the middle channel entrance, and makes much more remote the probability or possibility of any water from Smoke's Creek ever passing westerly of the breakwaters. But let us pass on to the northerly section of the harbor.

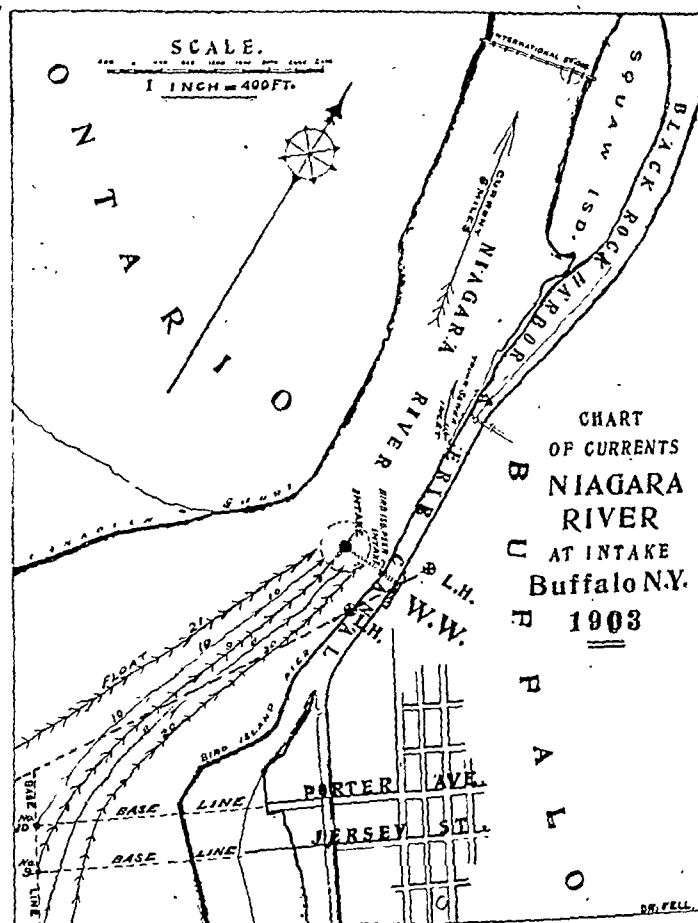


Fig. 11.—Chart of Niagara River at intake. Detail of currents.

The wind at the time was blowing briskly from the east, which was directly against the course of the current, and the float. Mayor Knight witnessed this demonstration. The idea that the wind produces currents opposing the natural flow of water was proved to be false in this case. The float further coursed in a good sweep to the north and east and lodged against the west side of Bird Island Pier as shown on the chart. This might be called the initial official observation, except that I had known of this current from almost the beginning of the construction of this north breakwater, watching it daily in my trips to what was then my summer home at Crystal Beach, Ontario, and studying it for years since; the fact is emphasized that this current always sets from the lake toward the shore and forces the outflow from Buffalo River and the United States Harbor to the eastward; that all septic material from these portions of the harbor is actually driven further

eastward from the intake pier than it was before this breakwater was constructed. Again, I have frequently observed the outflow of Buffalo River in the spring freshets. From any of the high buildings (Fig. 10) the line of demarcation of the muddy water of Buffalo River can be distinctly seen to the east of the clear blue water of the lake. I have called the attention of several engineers of repute to this fact, which they have verified. The great importance of this current on summing up the results of all these factors, which have been questioned by engineers who have made a cursory examination of the question, will be noted.

Float 19 started 500 feet westward of the north end of the old breakwater, was picked up about midway along the westward side of the north breakwater indicating that at that point the current divides, one portion going north and the other south (Fig. 9).

Float 20 started at a point 1,000 feet westerly and at right angles at the north end of the old breakwater. in 37½ minutes was picked up at the intersection of Virginia Street, prolonged westerly, and the prolongation of the old breakwater northerly. From this point it was again started and followed to a point one-half the

over 1,000 feet out into the lake before it could pass the current passing into the south harbor entrance. If it could do this it would have to repeat the performance at the middle entrance, and if such an absurd occurrence could take place it would be necessary for the floating material to jump out at least 500 feet at the north end of the old breakwater to prevent being forced around the southerly end of the new breakwater and be carried northward closely skirting the Bird Island Pier at the region of the intake. And again, as I have shown, to reach the intake such material would have to gain a

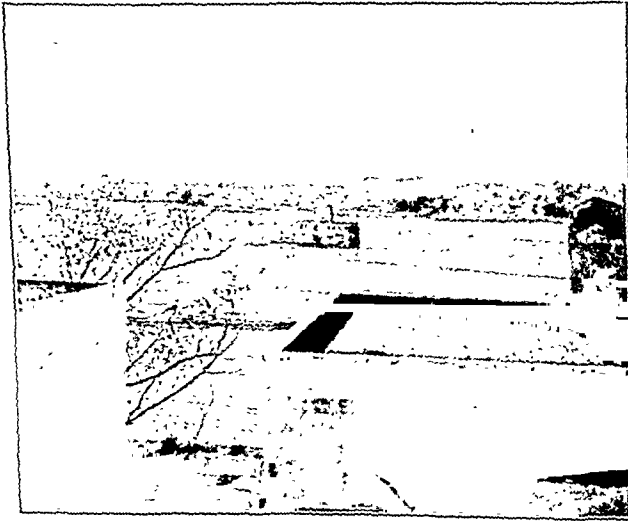


Fig. 12.—View of present intake from American shore.

distance between the intake and Bird Island Pier, or 320 feet eastward of the pier. Without giving the course of intermediary floats, which show on the chart, it was found that the one started from the intersection of Jersey Street and the old breakwater prolonged took the course to the center of the intake pier. (The new intake takes the same water). From this it is seen that the intake is supplied by water coming from the starting-point of Float 9, intersection of Jersey Street and breakwater prolonged, and which if carried in the regular course of lake flow from the southward strikes a point over three thousand feet westerly of the north end of old breakwater (red light—Fig. 9).

Now let us see what kind of condition would carry any material from Smoke's Creek to the intake under the conditions of wind and weather cited. If we continue the general course of this current further southward to opposite Smoke's Creek it will be found to be about three and one-half miles out in the lake. Hence, to reach the intake pier, material from Smoke's Creek would have to start about three miles out in the lake to begin with. Taking it as it is, material from this creek floats along the shore, but would have to jump

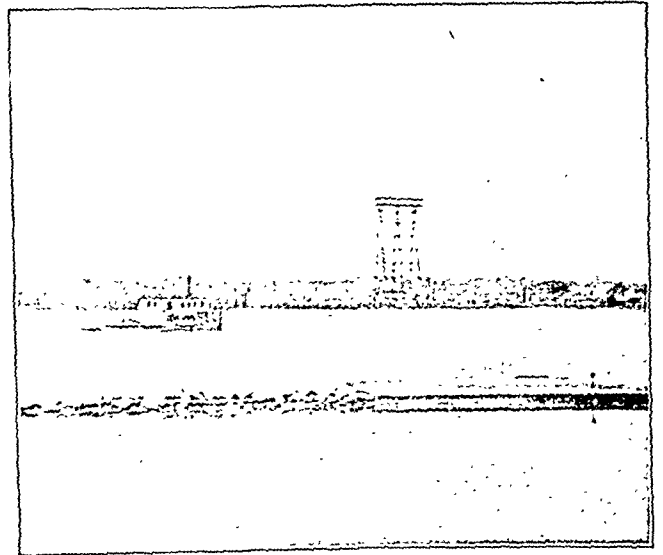
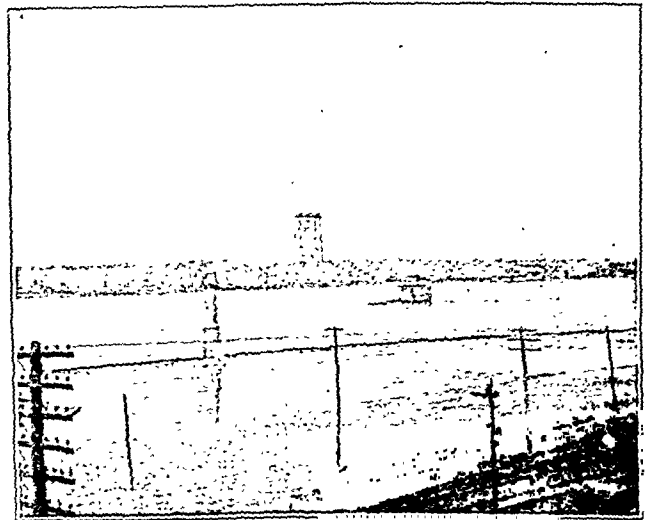


Fig. 13.—View of intake, and Bird Island Pier intake, the latter the source of epidemic of 1894, costing over 100 lives.



14. View of intake, range lighthouse and Bird Island Pier.

position at least 3,000 feet west of the north end of the old breakwater to reach the intake pier.

That any one could make the statement that material from Smoke's Creek, in the face of such natural conditions, could reach the intake is absurd, but the assertion has been made by sanitary engineers. No one who valued his reputation would do it after knowing the actual conditions of the currents, which through my investigation was first definitely given to the knowledge of the citizens of Buffalo. The strongest argument in favor of my stand in this matter is that in the spring when

the rains poured down, when both Buffalo River and Smoke's Creek were pouring their waters filled with typhoid infection, out into the lake with their fullest flow, no increase in typhoid fever or even in enteric diseases, according to statistics, took place. Had the material from the epidemic district of Smoke's Creek and Buffalo River reached the intake and been pumped into the water-supply, notwithstanding the precaution to boil the water, which was only partially carried out by the people at the time, there would have been a typhoid epidemic such as no large city in the country ever dreamed of, and the prognostications of dire results from the Smoke's Creek epidemic would undoubtedly have been realized. One great point of interest which I believe will make this paper appreciated is the remarkable and wholly unexpected course of these currents, never before studied, and their clear influence in protecting a great city, (through the location of the intake pier by fortuitous decision only, and not from any true knowledge of current conditions based on investigation), from its own infectious factors. The epidemic of 1894, costing over 100 human lives, I may again state proves this point.

Special attention is called to the current passing around the southerly end of the new breakwater. Its

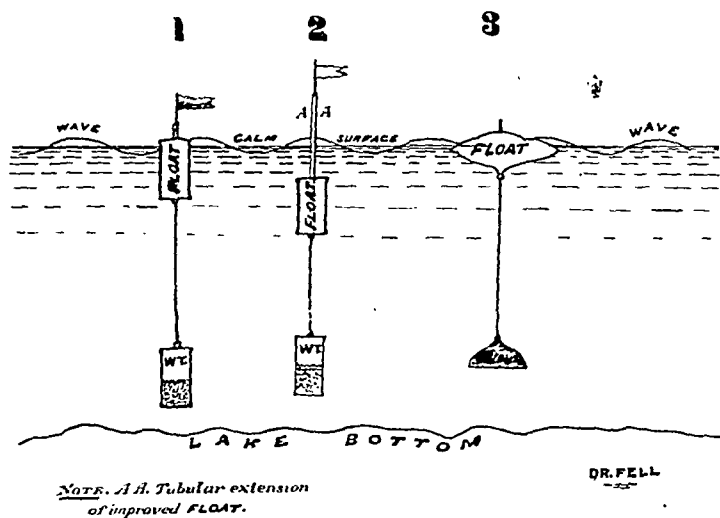


Fig. 15.—Diagram of floats. No. 1 used; No. 2 recommended; No. 3, a form condemned by author as unreliable in light seas and winds.

influence can be observed, as I have stated, any time in the spring freshets from the high elevations of the large buildings overlooking this portion of the harbor. It retains the freshets of Buffalo River and all material coming along the shore of the United States Harbor to the eastward and forces it closely along the westerly shore of Bird Island Pier, and much of it passes into Black Rock Harbor and the Erie Canal. From the Morgan building, in which my office formerly was located, I have observed it hundreds of times.

It was natural that opposition to my views based on the results of these extended and careful observations of the currents should persist even after the result was known. It was held that undercurrents, never known to any lake observer through unknown or never-heard-of wind conditions, carried the infection from both Smoke's Creek and Buffalo River out to the Buffalo intake, and also that the north breakwater aided in carrying infection further out in the lake than before it was constructed. And it is on record by one New York City engineer's report that the waters along the westerly side of the old and south breakwaters is seriously contami-

nated according to his bacteriological reports. I am not entering into any controversy with those who differ from me on this subject at the present time, but present these observations honestly, carefully made, and from an engineering point of view, without triangulation, most interestingly and correctly located and charted.

VALUE OF CURRENT OBSERVATIONS TO THE CITIES ON NIAGARA RIVER RECEIVING THE SEWAGE OF BUFFALO

About the year 1868, prior to the location of the draw of the international bridge (Fig. 11), I assisted in taking triangulation observations of the current of the river for about one-half mile south from and to the bridge site. This work was done at the suggestion of the officers of the Corps of Engineers, U. S. A., to aid in determining the rapidity of currents with reference to the best location of the draw of the bridge and resulted in a change from the proposed location from the center of the river in 36 feet of water to the eastern side in 16 feet of water. It also demonstrated that at this point the currents followed closely the general axis of the river, so that the pure water of the river follows the Canadian shore, and the contaminated water, owing to virtually the entire sewage of the city of Buffalo being thrown into it, the American shore. If the city of Niagara Falls takes its water-supply from the Canadian side of the river at a suitable point relatively pure water should be obtained. This observation may apply to many other cities.

It is to be sincerely hoped that the befouling of our potable water-supplies through sewage thrown into the lakes, rivers and streams of the country will be discontinued, as it can and should be.

24 West Eagle Street.

PRESENT-DAY PROBLEMS AND PROGRESS IN PREVENTION OF TYPHOID FEVER*

WALTON FOREST DUTTON, M.D.
CARNEGIE, PA.

The health of a people is its most valuable asset. This truth has been recognized by most governments of the world. They have found that the virtue of national strength lies, in great part, in the conservation of national health.

The United States government in its battle against malaria, yellow fever, cholera, uncinariasis, and plague, has accomplished much for the common good, but seems to have taken little interest in the prevention of typhoid fever. The first effort of any magnitude in this direction was during the Spanish-American war. The result was a signal, dismal, and disgraceful failure. The camps of Chickamauga, Tampa, Fernandino, Anniston, Mantauk Point, and those in Cuba, were enough to arouse the medical world to the inefficiency of the medical department in the prevention of typhoid fever. The national government's aid in the past twelve years, however, has materially increased, but not to the degree of being of intrinsic value to the people of the country.

It has been, comparatively, a recent procedure for the states and municipalities to take active part in the prevention of typhoid. Rural districts in all parts of the United States and Canada are practically without preventive measures. In northern Canada, during the

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

year 1909, typhoid fever appeared to be generally epidemic, especially in the mining regions.

The preventive measures used are nothing beyond the occasional disinfection of stools and urine with chlorid of lime or bichlorid of mercury, and the boiling of drinking water. Contaminated springs and wells are

Present-day problems, as well as those of the past, concern, first, the individual; second, the community; third, the state.

In considering the individual, we must take his responsibility or importance as a factor in the causation or prevention of typhoid fever. The individual, in

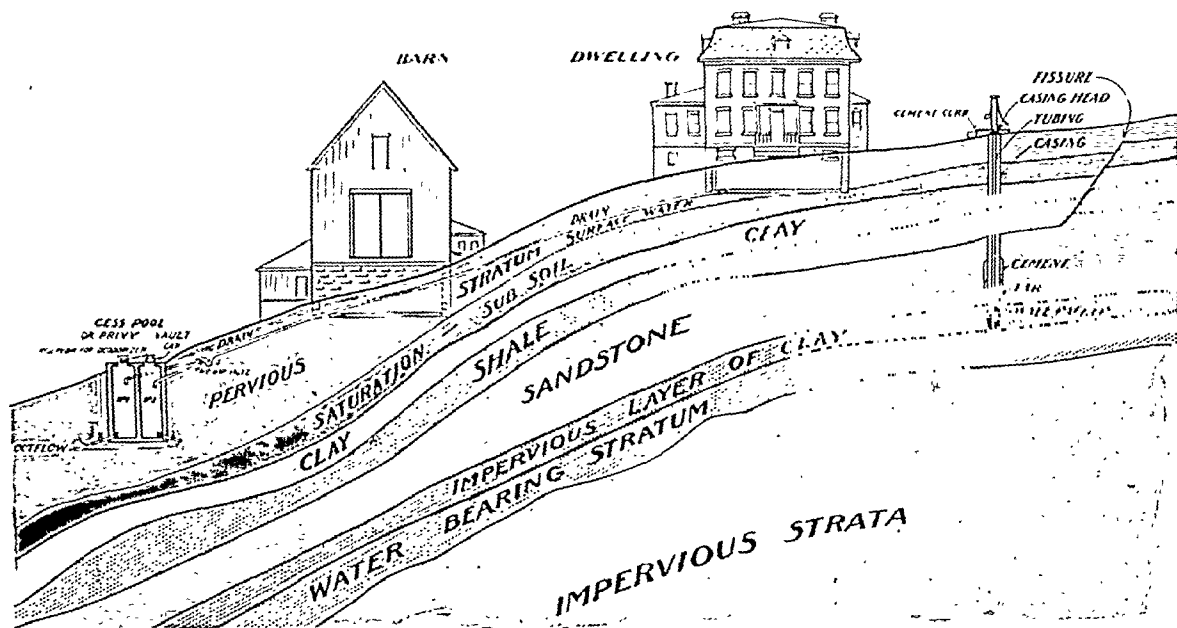


Fig. 1.—The proper method of sanitary construction in rural districts.

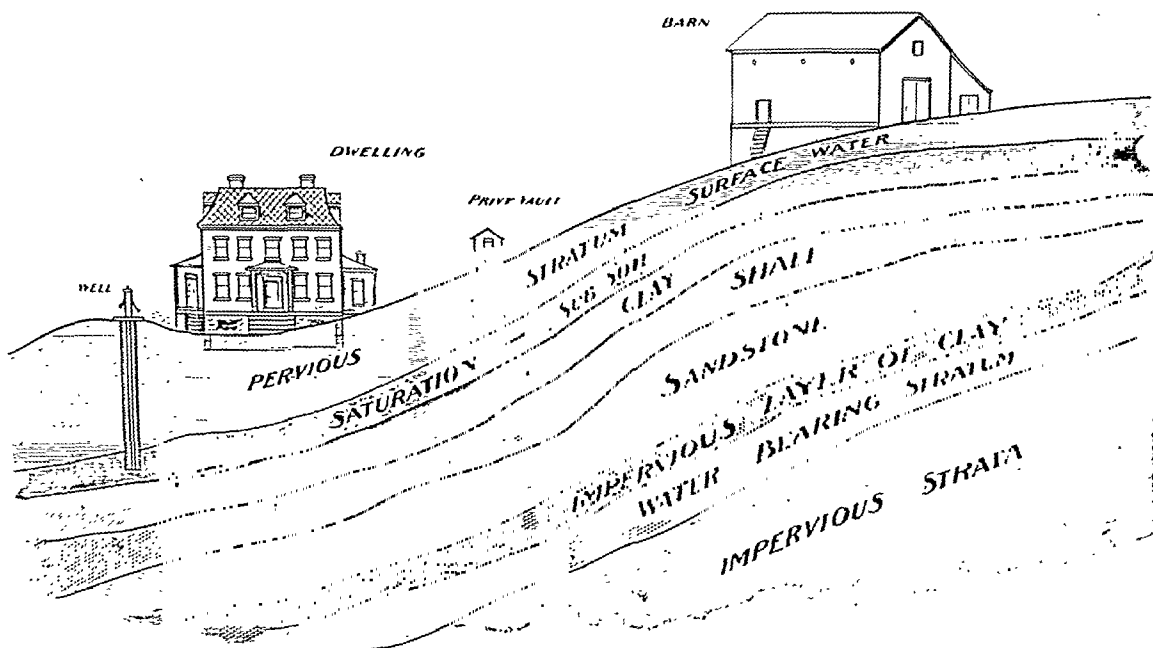


Fig. 2.—Improper method of rural sanitary construction.

not condemned, but cleaned out, sprinkled with lime or salt, and used again. Within the scope of my personal knowledge are several dug wells that have been the source of typhoid for twenty years. Any reference to them, however, as a means of infection, is met with apathy on the part of the consumers.

health, may be the means of carrying and distributing typhoid germs, and, in fact, may be the sole origin of the bacilli.

We know with what ease he may carry the bacilli by contact, food, etc., and, on the other hand, through some error of diet or irritation the digestive

tract, the colon, paracolon, or the paratyphoid, may, I believe, generate typhoid.

The individual comes to be a factor in the prevention of typhoid through a due process of education and law. He must be educated to know the nature of typhoid fever and the processes by which bacilli may be disseminated. Laws concerning preventive medicine and

Physicians should keep a record of all typhoid cases and systematize the record of carriers that due prophylaxis may be secured. The healthy, as well as the unhealthy germ-carriers, may be trained in the importance of prophylaxis, and thus reduce the source of danger to a minimum.

In every case, systematic search should be made for the source of infection, and the finding of bacillus-carriers will prove an important adjunct in the prophylaxis of typhoid fever. The prevailing idea that healthy carriers cannot be brought under supervision like other carriers is worthy of serious thought. The time is near at hand when the community and the medical profession will have the problem solved for their ready perusal and use.

The state is the great supervisor of preventive medicine and public health. In its hands lies the governing power, which, if duly exercised, can eliminate, not alone the major, but the minor sources of diseases. In Pennsylvania, the department of health, under the efficient supervision of Dr. Samuel G. Dixon, has typhoid, as well as other diseases, under practical control. From this department, means of communication is had, through its police system, with every dale, hamlet, and city, within the borders of the state. Within a few hours, infectious and contagious disease, in the most remote part of the state, is reported to the department of health and receives prompt attention.

Our present knowledge of typhoid is limited to the following factors as sources of infection; water, food, personal contact with the diseased individual and insects.

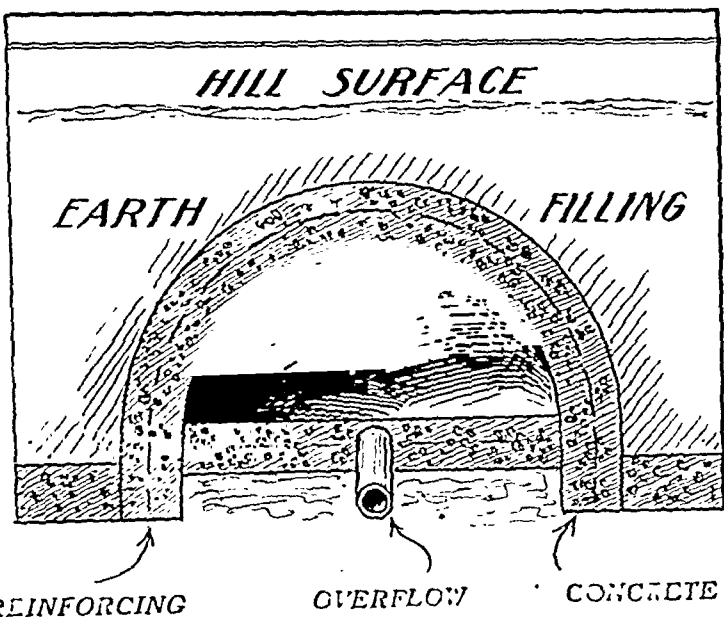


Fig. 3.—Concrete spring cover.

public health become more forcible through the individual's hearty cooperation.

The problem of the community is somewhat more difficult than that of the individual or the state. An epidemic may present many sources of infection and the situation may be complicated by the restriction of the authority of the community.

A commendable procedure, however, is the isolation of bacillus-carriers until the microbes can no longer be found in them. Precautions should be taken that the discharges of the carrier will not be a source of danger to his family, and to others. The individual is warned of the danger of the dejecta, urine, kissing, coughing, etc., and taught the processes of rendering these harmless. He is also to be instructed to wash his hands after defecation, and before handling clothing, food-stuffs, or vessels used for drinking purposes. This warning applies to the healthy, as well as the unhealthy bacilli carriers. A very great deal of responsibility rests on physicians, nurses, and hospital authorities. It requires tact, skill, and ingenuity to impress on individuals especially, the gravity of the disease, without causing undue timidity on the part of the persons involved.

The supervision of carriers employed as teachers, nurses, cooks, or employes in bakeries, dairies, restaurants, saloons, etc., should be rigid, for the community has a right to insist on the isolation of such carriers, until such a time as they are free from the germs. Hospitals should regulate their subordinate personnel, keeping careful record of all known bacillus-carriers, and using every precautionary measure to prevent contamination by instruction and enforced cleanliness.

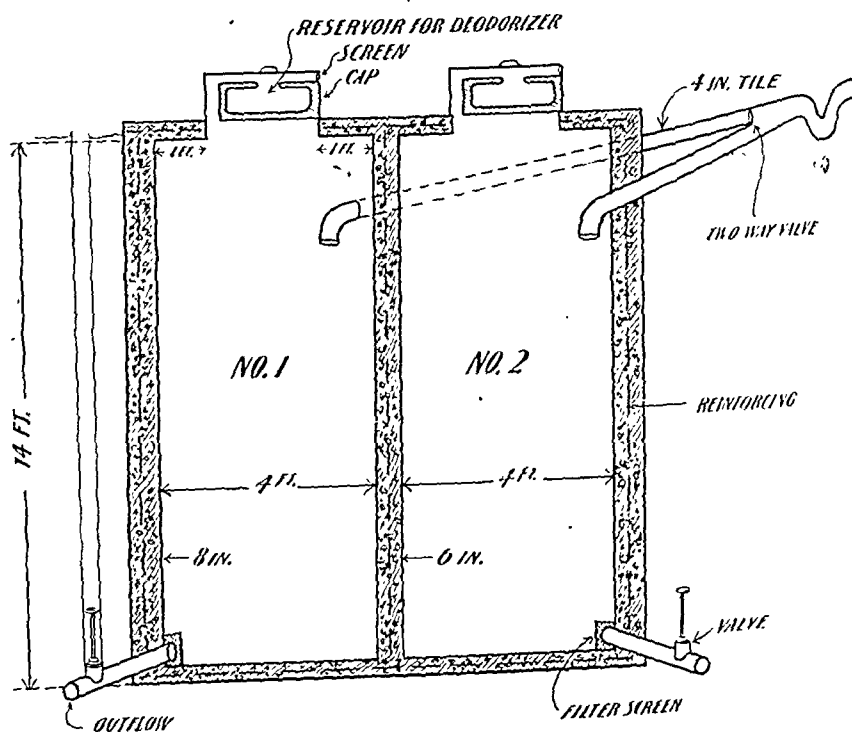


Fig. 4.—Concrete cess pool or privy vault of two compartments.

A great deal of progress has been made in eliminating water as a factor in our large municipalities by filtration, or by supply from large fresh-water lakes and streams.

The water-supply in small towns and rural districts presents a problem of more difficult solution. I believe, however, that this factor may be overcome by proper sanitary regulation and legislation enforcing the protection of wells and springs. (Fig. 1) All wells should be drilled and the supply should be from depths beyond all

possible contamination by surface or fissure water. This may be best accomplished by casing the well to or on a stratum of rock or shale which is impermeable to surface, subsoil, or fissure water, and above the supply of water to be used for drinking purposes. A well not cased in this manner may be protected by a wall-packer. It is advisable, whether using a wall-packer or casing on the shale or rock, to run four feet of tar around the bottom; and above the tar, three feet of cement, or vice versa. The top of the casing should be protected with a casing-head, and the pump so adjusted that it will be both water-tight and air-tight. If, for any reason, the well must be dug, the tile (rough stone should never be used to wall a well) should be put down to an impermeable stratum, the bottom protected in the same way as the drilled well, each joint cemented thoroughly and the top protected by a concrete curb, as it keeps out the surface water and is easily cleaned.

The pathetic inscription of "the town pump" might be written as an epitaph on many a tombstone. The vine-covered spring where the wayfarer's thirst has been quenched and the rock-walled dug well are landmarks of the dark ages of sanitary science. The poetical "moss-covered bucket" has held a beverage deadly to thousands of human beings.

It is therefore time for a change from the ancient custom of placing dwellings, barns, privy vaults, etc., in such a location that they will drain into the spring or well, either over the surface, or through the soil, or permeable stratum (Fig. 2). Springs which may possibly be contaminated should be condemned, or they should be protected by cement or brick (Fig. 3). The

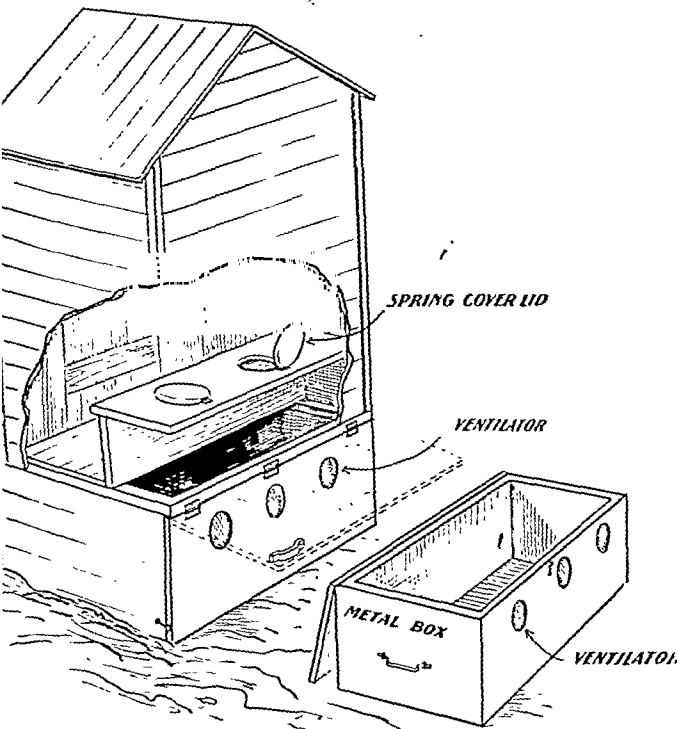


Fig. 5.—Perfection box closet.

shield or covering should be inserted into the surface far enough to shut out contamination from local sources. The basin of the spring may be easily constructed so that it can be cleaned at any time.

Municipal sanitation has taken a step forward in disposal of garbage. Seattle, Washington, Milwaukee,

Wisconsin, New Brighton, Long Island, Vancouver, British Columbia, and Westmount, a suburb of Montreal, have destructors in successful operation. The reduction method, used by Cleveland and Columbus, Ohio, seems to be profitable and efficient. The examples set by the foregoing cities should be followed by all other American towns and municipalities. Rural districts,

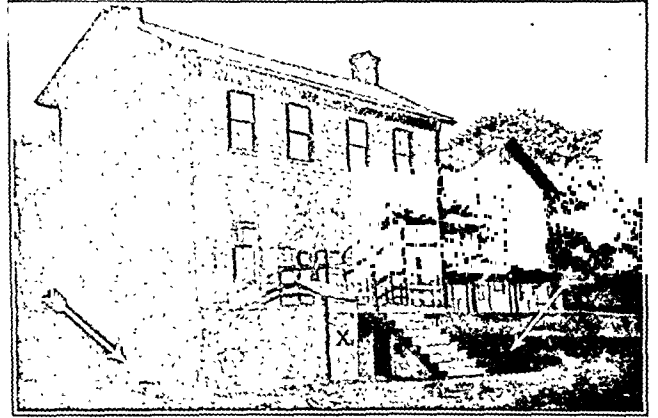


Fig. 6.—Well which has been contaminated twenty years.

by the use of metal cans and wagons, may accomplish the same end, in an unobjectionable and sanitary manner, if instructed and compelled to do so.

The care of feces and urine presents another problem for rural districts. This problem can be effectually met in three ways.

The first way is by the construction of a double compartment, reinforced concrete cesspool or privy vault

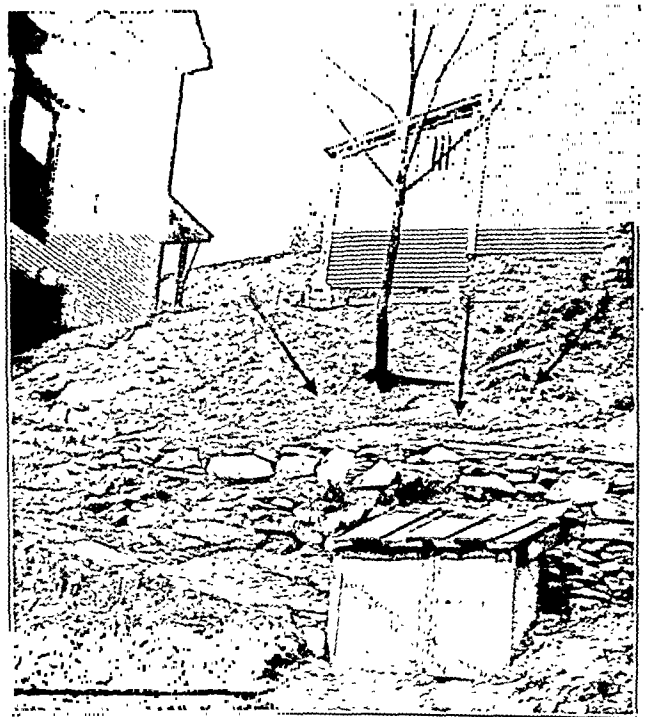


Fig. 7.—Drainage from house, barn and closet toward spring.

(Fig. 4). The cesspool or vault should be so built that only one compartment is in use at one time, thus providing for the disinfection and cleaning of the other.

The second is by the construction of a perfection box closet (Fig. 5). This closet may be so constructed as to be perfectly sanitary, allowing for free ventilation,

providing for disinfection, and screening from insects.

The third is by the use of a closet in which the stools and urine are sterilized or disinfected before being discharged into soil-pipe or drain. All railroad cars and vessels on bodies of fresh water should be provided with closets that disinfect and sterilize the stools and urine before discharging them.

The present method of constructing cesspools and privy vaults is a great error in so far as it pollutes the soil in the immediate vicinity, to say nothing of the

and other food on which flies and other insects breed should be kept in screened or other insect-proof receptacles. As to the breeding and destruction of insects, the Bureau of Entomology issues literature, which, if the instruction is followed, will in due time eliminate this factor.

Vaccination against typhoid fever is practically in its infancy, yet, I believe, in due time, it will be quite effective and valuable.

I believe that the following provisions should be embodied in state health law: The state should be the supervisor of all water-supplies used for drinking and cooking purposes. It should specify, at all times, from



Fig. 8.—Proper location of well with reference to drainage. Privy vaults marked X.

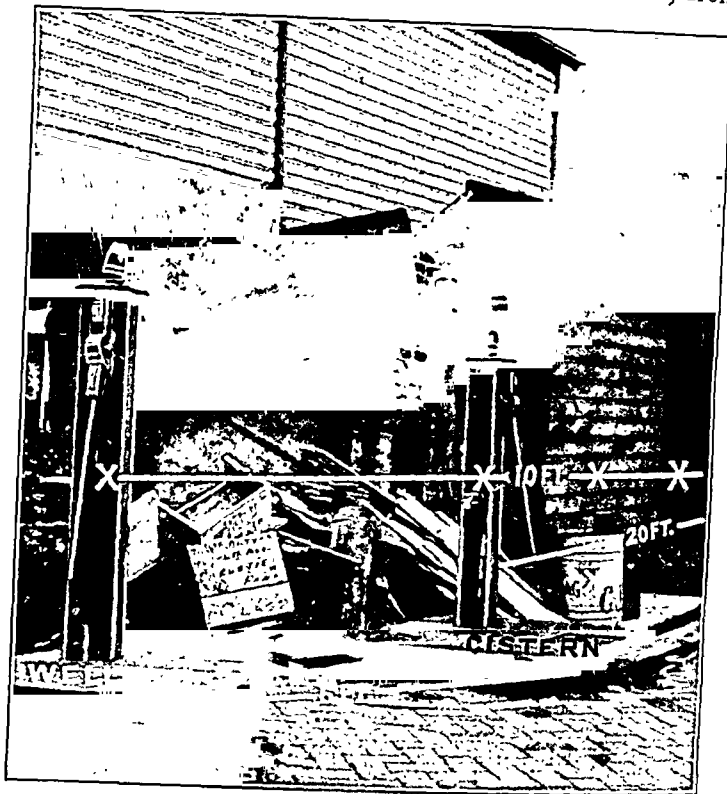


Fig. 10.—Insanitary location of well, cistern, privy vault and stable within twenty feet of each other.

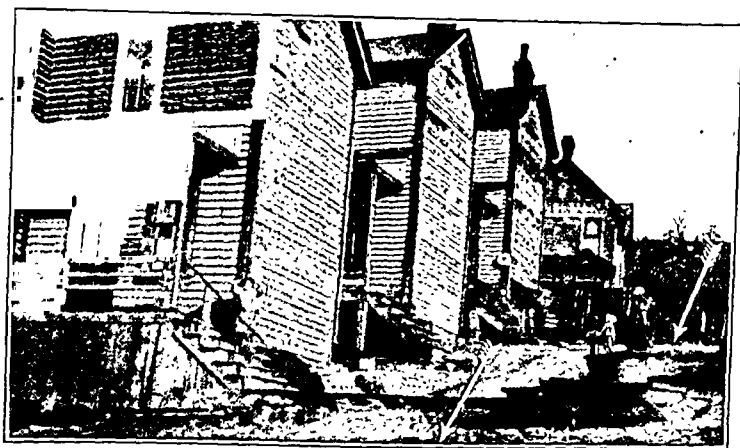


Fig. 9.—Improper location of well with reference to drainage.

drainage to some distance from the cesspool. The seed of disease that is sown in the soil and the subsoil to-day will grow and be reaped in the harvest of disease and death to-morrow.

The law should be so stringent as to compel all patients, who have had typhoid, to carry some efficient germicide that when they urinate or defecate in promiscuous places, the excreta may be rendered harmless.

Much has been said about insect carriers of typhoid, and the best method of prevention of breeding. Manure

which sources they should come, how they should be protected, and condemn all sources deemed detrimental to health. It should be the duty of the state to enact and enforce such laws as may seem fitting, relative to the



Fig. 11.—Insanitary conditions found in small towns and rural districts. Privy vaults marked X.

disposal of urine and feces from typhoid patients or bacilli carriers. It should be the duty of the state to specify how closets may be constructed on trains and vessels on bodies of fresh water, for purposes of disinfecting stools and urine. The state should specify, in given terms, how springs are to be protected and cleaned; how wells are to be drilled or dug, and protected from contamination. The state should hold equally responsible the individual, property-owner, attending physician, hospital, or whosoever may be found

guilty of violating any hygienic or sanitary rule, which will in any manner, whatsoever, disseminate typhoid fever infection. All physicians, hospitals, or those having supervision over typhoid case or cases, should systematize their records in such a manner that carriers may be traced, isolated, and cared for until such a time as they may be free from typhoid bacilli.

409 Fourth Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. DUTTON AND FELL

DR. H. W. HILL, Minneapolis: Dr. Dutton spoke very strongly about the question of typhoid from wells. I cannot speak for any other state than Minnesota, but I know that typhoid from wells is very uncommon in that state, probably for the reason that the character of the soil is such that the contamination is filtered out before it reaches the well. Our rural typhoid is practically never from wells in our state. Our well typhoid has been, as a rule, from the public wells of large communities infected very seriously with pollution of various kinds carried directly into them.

DR. C. HAMPSON JONES, Baltimore: Baltimore is considerably interested in the control of typhoid fever. In a résumé of the subject for a period of four years, which was published in our annual report of 1907, I mentioned the ten possible sources of typhoid fever in the city. Contrary to many excellent authorities, I believe that a great deal of our fever comes from the pollution of the water supply. The characters of the outbreak of typhoid fever due to milk infection are so peculiar, so clearly defined, that it is quite easy, I think, for us to detect practically every milk outbreak. In one there were 157 cases on one man's milk route; in another about 58 cases, and there were three or four others, which fortunately were checked in the very beginning of the outbreak, which produced only a few cases. We have followed out also the typhoid carriers, and we have had two very interesting cases. One was in a home for young women. The woman in charge of the pantry—of the foodstuffs—was discovered to be a typhoid carrier, after there had been fourteen cases of typhoid fever in this place. We excluded the possibility of the milk being infected, and also the water supply in that special locality. Dr. Stokes, our bacteriologist, followed out two carriers lately in a convent where there was a laundry; in it were a large number of colored girls. Two sisters in charge of the girls were the carriers, and the curious and interesting part of it was that there were two distinct outbreaks—one of paratyphoid fever and the other of pure typhoid. One sister was a carrier of the typhoid organisms; the other sister was the carrier of the paratyphoid; the children associated with each case developed typhoid fever according to the sister in charge of them.

In Baltimore we are about to perform an experiment on a great scale. We are putting in a sewerage system including the entire city. We will in a few years do away with all privy wells, of which we now boast in the neighborhood of 70,000. Just previous, however, to the doing away of these privy wells, the drinking water will be filtered. This will enable us to determine how much, if any, typhoid fever was due to both and to each.

DR. LISTON H. MONTGOMERY, Chicago: There seems to be a good deal of difficulty in taking care of the welfare of the people in public health matters in certain communities. May it not be due frequently to the fact that a layman has been appointed as the official health officer? I think this condition prevails in some portions of the northern states as well as in the South. People are not prone to look on a layman as very much of a medical scientist, especially when it comes to the matter of pollution of well waters, cisterns and rivers and streams, or in the matter of the eruptive diseases, and do not respect his opinions, and therefore may be careless in carrying into effect sanitary measures in detail.

DR. W. FORREST DUTTON, Carnegie, Pa.: I think it is a grave mistake on the part of the municipalities and the

health officers in rural districts to countenance the pollution of soil. Some of our most eminent sanitarians are working on the question of soil pollution year after year, not alone with typhoid but with other diseases; Dr. Stiles, I think it is, has pointed out to us most forcibly the effect of soil pollution; and in most of our northern states, especially those that have been settled for two hundred years, soil pollution is a serious problem that will remain with us as long as we will countenance these open privy vaults. I believe that the state of Pennsylvania has caused to be constructed within the last few months privy vaults that are to be bricked up about half way, and then are to be cemented the rest of the way up with an ordinary covering over the vaults, and has prohibited the discharge of sewage into certain streams. I think that is a grave error. If they are going to compel the citizens in the rural districts to construct privy vaults, why not erect them properly, so that there will not be this pollution of soil that has been going on for years? We have regular epidemics of typhoid fever which may not be due to the water originally, but to drainage from privy vaults into the soil. According to a great many eminent authorities these bacilli are viable for an indefinite period, possibly multiplying in the soil, and as far as Dr. Hill's reference is concerned, Minnesota is comparatively a newly settled country, and a hundred years from now if they allow this soil pollution to go on they will have the seeds of disease sown that will be reaped by future generations.

SURGICAL MISTAKES IN INFANCY AND CHILDHOOD*

SAMUEL WALTER KELLEY, M.D.

CLEVELAND

Not all the mistakes here related are of my own making, for which I am duly thankful. But many of them or their results have come under my own observation. Others have been related to me by my colleagues.

The cases are, for the most part, not merely such as would in the adult present difficulties in diagnosis or in treatment; but they are such as are met only in the surgery of infancy and childhood, or in these periods of life present peculiarities when compared with corresponding conditions in the adult, and lead the practitioner unfamiliar with them into error.

I have taken especial pleasure in presenting the illustrative cases furnished by my colleagues, because they show that the idea that mistakes in the surgery of infancy and childhood are altogether too common is entertained not by myself alone; they show also that the condition of ignorance of children's surgery is not confined to any one part of the country.

NECESSITY FOR CAUTION IN OPERATING ON CHILDREN

Take for example the following case, related to me by Dr. Zahorsky of St. Louis: An infant 5 days old had an enormous cephalematoma, which was aspirated by a physician, but promptly refilled. A surgeon then made an incision and packed the cavity with gauze. But in spite of all measures slight bleeding continued until the baby died. There was no history of hemophilia and none of the doctors considered the baby a "bleeder;" but it taught them a lesson they should have known before—for such cases are not uncommon—namely: never to operate on cephalematoma unless, later on, an abscess results, which must be drained.

A baby 3 days old with a hare-lip was operated on, losing some blood, of course, at the operation, and suffered from severe secondary hemorrhage, from which it

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

died on the sixth day. This illustrates the point that, since there is no necessity for operating at once on a hare-lip, a child should never be operated on for this condition during the first few days of life, when the tendency to hemorrhage is so pronounced. The same is true of phimosi, a spina bifida or any malformation not immediately endangering life. In anorectal imperforation, atresia of the esophagus or the like, it may be necessary to risk immediate operation to save life.

A child of 4 years, in good general health, but with a cleft palate, was operated on in the presence of a purulent rhinitis; the result was failure of union and sloughing of a portion of the flaps. The lesson from this mistake is obvious. No such patient is fit for operation until the adjacent tissues have been rendered free from infective inflammation.

A boy of 5 years with cleft palate came to a dispensary and, although he had a cough, was somewhat hastily put through an operation for cleft palate. The cough proved to be whooping-cough. It was not very severe, but it was persistent and had the spasmodic paroxysms of that disease, and it tore out some sutures. Bronchitis followed the operation, perhaps favored by the hemorrhage, bronchopneumonia supervened on the bronchitis and the boy succumbed in the third week of his illness. It was a mistake to operate on that child with a cough.

Dr. Zahorsky relates a similar case in a girl of 4 years operated on for cleft palate, by mucoperiosteal flaps and staphylorrhaphy, with chloroform as the anesthetic. A mild bronchitis was present at the time of operation, but grew worse, developed into bronchopneumonia and resulted in death two weeks after operation.

It is a mistake to perform any similar operation on a child in whom elevated temperature indicates the possible onset of an acute illness, and especially is this true if it is a child who is subject to convulsions on the slightest provocation, for convulsions are disastrous to the results, not only in operations on hare-lip and cleft palate, but in many postoperative conditions which will readily occur to mind, and convulsions are a great deal more likely to supervene in a child than in an adult.

Dr. Cattermole states that he has several times seen operations performed for adenoids and enlarged tonsils when the child was in no fit condition, having acute pharyngitis or bronchitis at the time of operation. Dr. Cattermole also relates the case of a child of 5 years with appendicitis gone to abscess. After evacuating the abscess the surgeon persisted in removing the appendix, and the child died. Dr. Cattermole considered that it would have been better merely to drain the abscess for the time being, and he was right.

DANGER OF DELAYING OPERATION

I shall never be able to forget my first case of foreign body in the larynx. That was more than twenty years ago, but it remains indelibly impressed on my memory:

A girl of 6 years was brought from the country to my clinic at the dispensary. She thought she had drawn into her windpipe a piece of the kernel of a hickory-nut. There was some dyspnea which was worse in paroxysms with coughing, and some aphonia; but, again, at times the breathing would be easy and comfortable. The girl was quite able to walk about. I placed her in the hospital intending to operate. But a distinguished laryngologist, and a senior surgeon on the staff, both my superior officers in the institution, advised against operation. The laryngologist inspected the throat on several occasions with laryngeal mirrors and attempted with laryngeal forceps to remove the foreign body. On failing to do so he always postponed operation in hope of better luck with his

fishing tackle on the morrow. On the fourth day the foreign body suddenly shifted its position and the dyspnea became extreme. The house physician hastily summoned aid. I was the first to arrive on the scene and in a moment had opened the larynx and extracted the nut-kernel. The child took one easy breath, but that was her last. She was exhausted. That child could have been saved by timely operation.

It is a mistake to rest and wait with a foreign body, however quiet, in the larynx or trachea unopened. There is no safety until it is removed.

MISTAKES IN DIAGNOSIS IN CHILDREN

Many a case of retropharyngeal abscess has been mistaken for tonsillitis. Less frequently, a passive edema of the pharynx, an angioma, a mucous cyst, or a gumma has been mistaken for an abscess.

In one patient 2 years old, a few weeks after diphtheria, when nasal intonation occurred, and difficulty of swallowing, the fluids returning through the nose, I was about to make a diagnosis of postdiphtheritic paralysis. But, on exploring the throat, I found retropharyngeal abscess, and close examination revealed the fact that both paralysis and abscess were present at the same time. Postpharyngeal abscess may readily be mistaken for paralysis or both may exist together.

Retropharyngeal abscess may be mistaken for uremia. The following case is contributed by Dr. Le Grand Kerr:

A boy of 3 years, afflicted with postscarlatinal nephritis, suffered from indefinite symptoms for three days, but with such marked prostration and mental dulness that the onset of uremic convulsions was feared. Dyspnea became more and more marked. During all of this period the child refused to partake of food. It was difficult to collect the urine and that was given as the excuse for its not being examined. Mouth-breathing finally became established and there was a free flow of saliva from the mouth. The prostration was the most marked feature of this illness. On the fifth day Dr. Kerr saw the child and an examination of the throat revealed, when the tongue was depressed, a very slight bulging of the posterior pharyngeal wall. Digital examination then confirmed the suspicion of abscess. Stenotic breathing was a noticeable feature of this case.

Quite recently, I was called by Dr. B. to see a little girl of 4 years. She had always been a delicate child. The present illness had lasted five weeks. It had begun as a pneumonia, and then developed an undoubted nephritis, with abundance of albumin and casts in the urine. The pneumonia and nephritis had subsided. The urine cleared up almost entirely. Some cough remained. But the child continued to have fever up to 102 and 103 or more; complained of pain in the right hypogastrium and loin, and had become so emaciated and reduced in strength that her death was expected from day to day, and from night to night. The attending physician had called in counsel one of the most noted practitioners of the city, who had made an exhaustive examination. Appendicitis, among other diseases, was suspected and excluded. It was thought likely a stone in the kidney was producing the pain and the fever; and it was advised that the child be transferred to hospital and examined with the x-ray for the purpose of detecting the stone. After hearing this history I examined the patient, with the result that I drew off with a trochar several ounces of pus from the right pleura, drained the cavity by a free incision the next day, and the child made a gradual, but uninterrupted and complete recovery.

It seems almost incredible that such a mistake could occur in the hands of competent men. This is explained by the fact that they were men more accustomed to handling adults than children. The severe pain in the hypogastrium and loin misled them. A pediatricist would have known that the pain of pleurisy in a child is just as apt to be referred to the abdomen as the chest; that

in the small body of a child a tympanitic percussion note from the stomach or intestines may be so transferred to the chest as to mask the dulness of an effusion or a consolidation, and that stone in the kidney of a child is comparatively rare, while purulent pleurisy is very common.

Pneumonia and pleurisy, especially, because of the pain associated with them, which is as frequently referred to the abdomen as to the seat of the lesion, have in numerous cases, when located on the right side, been considered as appendicitis. So deceptive may these cases be that a diagnosis of appendicitis should never be made, or at least a decision to operate never arrived at, until the chest has been most thoroughly examined by one accustomed to physical diagnosis in children. Of course, it is to be remembered that chest and abdominal inflammation may co-exist.

Dr. Elterich of Pittsburg considers empyema and intussusception the two surgical conditions which are most apt to be overlooked or to lead to mistakes in diagnosis.

Dr. Hollopeter states that the overlooking of a remaining effusion, which, as is well known, is apt to be or to become purulent, is the most common error he meets. Next in frequency he places neglected otorrhea requiring surgical intervention.

In this connection Dr. L. K. Shaw cites three cases in which diagnosis of appendicitis was made when the trouble was pneumonia.

Dr. Van Derslice recently related to me a case of pneumonia in an infant at which he arrived just in time to find the physicians, already in consultation, discussing the advisability of operating for intestinal obstruction.

Dr. E. H. Bartley of Brooklyn refers me to a case reported by him,¹ in which he assisted at an operation for appendicitis and found the ileocecal valve plugged with lumbricoid worms.

Speaking of wrong reflection of pain by children reminds me that I have several times seen a persistent and troublesome abdominal pain treated by all sorts of attention to the digestive tract, when the real cause of it was caries of the spine. The spinal nerves near the lesion were irritated and caused the pain, but this was referred to the point of distribution of the irritated nerves in or on the abdomen. Meantime, the serious tuberculous inflammation in the vertebræ was neglected, because no curvature had yet appeared and the physician failed to recognize the early signs, which are quite as distinctive. A lateral curvature may cause abdominal pains, but when it does the curvature is usually so marked that it could scarcely be overlooked. Again, it is not uncommon to see a spinal curvature due to rachitis mistaken for an angular curvature and the condition aggravated by loading the weak frame with a plaster jacket or a brace. This is a quite unpardonable mistake.

A case which occurred but a couple of months ago illustrates a typical mistake and brought freshly to my attention a class of cases in which mistakes too frequently occur:

Marion P., a well-grown, beautiful babe of 9 months, had been sick ten days at the time I was called in consultation. The history showed a sudden onset of the illness, with pain, evidently paroxysmal, judged by the screaming spells induced, with vomiting which, on the following day, brought up greenish fluid, and with frequent small bowel movements with straining which discharged a small amount of fecal matter together with mucus and blood. A diagnosis of gastro-

enteritis was made by the attending physician and the usual remedies used. The acute character of the symptoms abated, but did not cease. The diagnosis was modified to ileocolitis, which might run a course extending over weeks. But, as the second week advanced without cessation of the symptoms, the parents became alarmed and requested counsel. With a dim suspicion of appendicitis or of intussusception in mind a general surgeon was called in. The diagnosis of ileocolitis was confirmed, intussusception being considered, but excluded because of the presence of fecal matter in the discharges, and because of the length of time the illness had continued without fatality. On seeing the case, the first thing that struck me was the facial expression of the infant, a peculiar expression of distress and hopelessness that the face assumes in cases of intestinal obstruction. On hearing the history—the sudden on-set, the paroxysmal character of the pain, the amount of the blood passed, the severity and persistence of the symptoms without a corresponding height of fever,—I was almost convinced that the condition was one of accident, rather than of disease. Then, in spite of objections, I insisted on examination under anesthesia and found what I had expected to find, namely, a tumor, that peculiar crescent-shaped tumor characteristic of the intussusception. It was lying deep, above and to the left of the umbilicus, with its concavity toward that landmark. It could be easily moved about and picked up in the fingers, and handling it brought on a paroxysm of pain and tenesmus. There needed nothing to complete the diagnosis. Within the hour the bowel was completely reduced by measured aerohydrostatic pressure, and the babe promptly recovered.

I have seen a case of intussusception of as much as three weeks' standing, with the mass descended as low as the rectum and even projecting through the anus, treated for dysentery together with rectal prolapse. My notes contain reports of several cases which had been mistaken for either dysentery or prolapse of the rectum.

Dr. J. Ross Snyder of Birmingham furnishes the following case:

The patient was a 3-year-old boy. After being ill with bowel trouble for several weeks, the patient awoke screaming in the middle of the night, complained of great pain in the abdomen and vomited very often. Next day he had dysentery, so called, which was checked by bismuth, but the movements still contained mucus and pus. The boy complained continually of pain in the abdomen and could not sleep. This persisted for eight days, when a tumor in the abdomen was discovered. After two days more Dr. Snyder was called in consultation with the family physician and a surgeon well known locally, who had agreed on a diagnosis of a diseased kidney, because the tumor was near the region of the right kidney and the boy cried out at each urination. Dr. Snyder convinced his confrères that the trouble was intussusception. The patient died ten hours after an operation which, if performed earlier, would probably have saved his life.

Dr. Snyder relates also the case of a babe of 16 months with a gastro-intestinal infection in which the conservative diarrheal process was not established, but in which the toxemia had paralyzed the bowel. This case was diagnosed by a surgeon as intussusception.

Dr. Cattermole relates the history of a case in which he made a diagnosis of sarcoma of the kidney in a young child. A surgeon was consulted, who advised against operation, not from any unusually conservative spirit, but because he did "not know what could cause such a condition in a child." Autopsy revealed the sarcoma, which evidently originated, as is often the case, in the suprarenal gland.

I cannot recall the number of times I have seen children wearing a truss on a hydrocele under the supposition that it was a hernia. To be sure, hydroceles of the cord or of the canal of Nuck, in which this mistake

1. Bartley, E. H.: Arch. Pediat. 1898, p. 272.

is usually made, occupy the position of an inguinal hernia, yet there is little if any excuse for a mistake in the diagnosis, if only the possibility of these forms of hydrocele be borne in mind, as the diagnostic signs are usually distinctive. I have seen a truss worn on undescended testicle supposed to be hernia—a blunder quite inexcusable, in view of the obvious diagnosis of the latter condition.

A few days ago a case of a new-born babe was referred to me with the statement by the physician that the penis was imperforate and that the babe had passed no water all the day of his birth. The physician had tried to find the urethra by making a puncture with a narrow-bladed bistoury through the glans in a longitudinal direction, but his effort was in vain. On examination it proved to be one of those not infrequent cases of hypospadias in which the urethra ends, a half inch or more posteriorly than it should, in a membrane so thin that its margin is invisible. In this case a small probe, directed in the proper direction, readily located the attenuated margin and found the urethra, which was patulous throughout, and a small catheter was passed, a small amount of urine being found in the bladder. The child soon urinated naturally and of course no operation at all was necessary. Through the employment of a little diplomatic talent the almost ludicrous blunder, which might have ended in several varieties of trouble, was prevented from becoming obvious to the family.

It is far too common to find hip-joint disease mistaken for disease of the knee-joint, because of the pain referred to in the latter location. It is not at all unusual to find a knee stained with iodine or blistered or abraded by the use of liniments, or even to find it encased in a splint, for a trouble located as far away as the length of the femur. And this not merely in the hands of the laity, but, I am sorry to say, sometimes under the advice of a physician. The disease supposed to be affecting the knee-joint in these cases is usually rheumatism. And, on the other hand, many a case of tuberculosis of the knee-joint and of some other joints, as well as cases of acute arthritis and of acute osteomyelitis, have gone on to irreparable damage while being treated under this mistaken diagnosis of rheumatism. As I have before remarked, "the scapegoats of puzzled medical pediatricians are teething and worms; the scapegoat of joint and bone surgery in childhood is rheumatism."

Dr. Le Grand Kerr contributes the following report:

A male infant, 18 months, was taken suddenly ill with high fever which fluctuated almost hourly and was accompanied with marked prostration and nervous symptoms. The left lower limb was held rigid, and severe pain was elicited about the knee-joint and ankle. There was redness, but no swelling. On the third day of such symptoms, the infant was sent to the Williamsburg Hospital with diagnosis of rheumatism. Examination now showed some swelling about the knee and ankle as well as redness and severe pain on handling. Fluctuation was detected on the fourth day. Complete operative procedure brought relief.

The following, also contributed by Dr. Kerr, illustrates how easily syphilitic periostitis may be mistaken for rheumatism:

A boy, 5 years of age, was sent to my service at the Seney Hospital (1909) with diagnosis of acute articular rheumatism. The knee was much swollen and reddened, and very painful. Temperature slightly elevated (100.2 F.) The child had been subject to frequent attacks of sore throat. Examination showed the knee-joint swollen, reddened and painful in front and at sides, but at back of joint slight fluctuation was

elicited. Incision was accompanied by free flow of pus. There was slight redness and swelling about one wrist and incision released a small amount of pus. With specific treatment recovery began at once.

Dr. Charles Douglas of Detroit reports several interesting cases in which scorbutus was mistaken for other conditions. The first case had been treated by one physician for rheumatism, and then by another physician for fracture of the neck of the femur or a dislocation, and, after plenty of manipulation, the limb had been put up in splints. Another patient with scorbutus presented two bluish swellings, one on the back of each hand. A surgeon was consulted and advised operation for their relief. Another surgeon saw them and acknowledged ignorance of their character. Both of these patients recovered quickly on orange-juice and raw milk.

A babe returned to Detroit after a summer in the Lake Superior region. It had staphyloma of both eyes, one being very large and ready to rupture. The oculist treated it locally and gave a hopeless prognosis for one eye, but hoped to save the other. When the case came under the care of the pediatricist raw food and orange-juice worked an immediate improvement, and a final cure, though leaving a large scar on the worst eye. The oculist was delighted and acknowledged to the pediatricist that the latter had saved the eye.

Dr. Douglas relates another instance in which a pronounced case of rickets was treated for rheumatism.

Dr. Shaw writes: "I have seen a surgeon excise a tumor on the leg which turned out to be a large blood-clot due to scurvy. I have seen a baby entered in the surgical ward with a diagnosis of sarcoma of the shoulder, which was infantile scorbutus, and cleared up in a few weeks with orange-juice."

Two boys, from their second or third years on, showed extensive contusions from any slight bump and when the eighth year was reached they suffered with joint swellings, the knees and elbows being most affected. These joint swellings would last from ten to fourteen days accompanied with pain, loss of function and discoloration. After repeated recurrences the joint attacks disabled them from all work or exercise, since extension of the joints was impossible by reason of the tenderness and swelling. When the elder brother was 18 years of age a surgeon, disregarding the history of the cases and the clinical condition which should have been sufficient to warn him of the presence of hemophilia, made the mistake of undertaking an operation. He tried to straighten the right knee by tenotomy of the hamstrings. The hemorrhage was not profuse at first, but it was most obstinate, and the first dressing was left on three days. Removal of the bandages was followed by renewal of hemorrhage which took place both externally and into the tissues subcutaneously. And this hemorrhage continued in spite of all efforts to control it until the eleventh day after the operation, when he died. (The younger brother of this boy died in his seventeenth year of a spontaneous hemorrhage).

Another mistake by another surgeon occurred in a connection of the same family, as follows: A nephew of these two boys manifested in his second year the swellings and discolorations of joints and the tendency to acquire contusions, characteristic of hemophilia. When he was 2 years old a slight cut on his finger bled four days. When 4 years old he accidentally bit his tongue and the wound bled three weeks. A small punctured wound on his chin bled nine days. When a few years older, a small cut on his brow received while coasting was repaired by two sutures. Six days later a large secondary hemorrhage occurred. Now a surgeon was called in. He heard the history of the case, but said he "didn't believe in bleeders"; that the trouble was all because people didn't know how to control hemorrhage; and that some doctors also were afraid of a little blood. In his opinion this hemorrhage

was caused by a vessel, deeper in the tissues, wounded but not completely divided. He enlarged the wound to search for the wounded vessel. The bleeding which followed could not be controlled by ligatures, sutures, or even by forceps which were left attached to the wound, but which broke away with the sloughing tissues, bringing the ligatures and the sutures with them. All known styptics were used but the blood continued to ooze during five days. Then, when the boy was nearly dead it ceased spontaneously, and the wound healed leaving a frightful scar. It is to be hoped that ere this the surgeon realized that he had made a mistake in not paying heed to the history, and in not believing in "bleeders."

Syphilitic osteochondritis, sometimes called osteochondrosis or perichondrosis or epiphysitis, will in rare cases cause a separation of the epiphysis from the shaft, and will produce the lesion so promptly and unexpectedly that it is mistaken for a traumatic separation. In more instances this affection has been mistaken for rheumatism or for scurvy. As an instance I will cite a case from Dr. Kerr:

A female infant one month old, suddenly developed inability to move one lower limb. The parents denied history of syphilis and the infant did not exhibit any of the usual manifestations of syphilis except a slight, but persistent rhinitis. As sterilized milk had been used from birth, the diagnosis was made of scurvy. When Dr. Kerr saw her in consultation, the left lower limb was immobile and the infant screamed at the slightest touch. A slight swelling was noted at the epiphyseal line. When direct questions were avoided and the history taken cautiously as to events in the lives of the parents, the history of syphilis was established. Later this infant exhibited many of the other manifestations of syphilis.

Traumatic separation of an epiphysis is notoriously apt to be mistaken for a dislocation, which it much resembles. This mistake occurs more often in injuries at the elbow than at any other joint in the body.

Zahorsky notes a case in which a periglandular edema (accompanying scarlatinal adenitis) was mistaken for abscess and was lanced with the expectation of discharging pus. But no pus was found. I am certain a number of us have seen the same mistake made. I certainly have, on several occasions.

Dr. Le Grand Kerr reports the following: A boy of 3 years was taken suddenly ill after a fall, with fever, vomiting and diarrhea, and within twenty-four hours it was noticed that the child did not move the arm. The general symptoms cleared up in four days (evidently owing to digestive disturbance following the shock of the fall), but the inability to move the arm persisted. In consultation on the sixth day, examination revealed a fracture of the clavicle. This illustrates a mistake which is very frequently made.

OVERESTIMATING VITALITY OF THE INFANT

It is a common mistake to overestimate the vital power of an infant and to undertake to put it through an operation too severe for it to withstand—such an operation for instance as that of forcing together the sides of the cleft in cleft palate when performed on a weakly young infant as in the Brophy operation. The chances of death following this procedure are far too many to justify it in the great majority of cases. Another example is that of rib resection in a weakly child of less than 18 months for empyema. A third instance is extensive resection of bowel in intussusception.

JUDGMENT IN USE OF SURGICAL PROCEDURES

But for the fact that it would consume too much time, I could give details of cases to illustrate the fact that often the administration of an anesthetic in an infant

or young child with bad digestive organs may, by the nausea and vomiting it produces, lead to inanition, resulting ultimately in death, days or even weeks after the anesthesia. The anesthesia and the operation may at the time have been perfectly safe and pronounced successful, but it was a mistake to excite the gastric difficulty by an anesthetic in a patient thus predisposed. A good illustration of this point is the following from Dr. Zahorsky:

Twins, 2 months old, artificially fed, were suffering from clubfoot. They were operated on, chloroform being used for anesthetic. Following the operation, vomiting occurred, followed by indigestion and atrophy. Both died about five weeks after the operation.

The same observer related to me the following instructive case:

A boy, aged 7 years, had an osteomyelitis of the left tibia which resulted in denudation of almost the entire bone and extensive necrosis so that the lower two-thirds of the shaft had to be removed. The wound healed, and subsequently the surgeon attached the upper end of the fibula, which had remained sound, to the remains of the tibia. The result of the operation was very good. But three months later it was found that the tibia had been entirely reformed by its periosteum.

Moral: The surgeon should have known that this spontaneous repair was likely to occur. Thus the osteoplastic operation was not only entirely unnecessary but the outcome of the case would have been better without that operation, if only time had been allowed for Nature's reparative work to take place.

The cases are too numerous to count in which mistakes have been made in the employment of antiseptic solutions in common use in surgical practice, but too strong and irritating for the delicate texture of the integument of the young. Ordinary solutions of mercuric chlorid used in moist dressings will often produce a dermatitis and, in the use of phenol in strong solutions or over large areas, phenol poisoning has not infrequently occurred.

Twice within the past five weeks and many times before, have I seen the mistake made of dressing an extensive scald or burn too hurriedly for strict antisepsis and without an anesthetic.

I think that in these days of antiseptic surgery, scalds and burns are more frequently badly dressed than any other kind of wound. An extensive scald or burn is a serious injury in a child, and even a small one may become infected and give rise to serious results. An anesthetic should be administered to relieve the suffering and diminish the shock, and then the wound should be as thoroughly cleansed as if it were an extensive laceration, and the chosen dressing applied. Then the case will probably progress as a clean wound instead of an infected, poisonous and vile-smelling one, as is too often the case, probably ending with toxemia with tetanic symptoms in about the third or fourth week.

It is a mistake to suppose that anesthetics are without danger in cases of infants and children. Three times in my life I have encountered such knee-shaking experiences as have given me a very wholesome respect for the dangers of anesthesia in children. It is true that the heart and kidneys of the young are less likely than those of their elders to be diseased, and that ordinarily children bear anesthesia better than their elders, with less nausea, from which they more quickly recover; but they do not well endure prolonged anesthesia; and the danger of sudden failure of respiration or of the heart is a very real one.

A mistake one not infrequently sees in visiting various clinics and operating-rooms is unnecessary exposure of the child during operation. Children, with their small bulk and thin and vascular skin, part very rapidly with their animal heat, and exposure of the surface, especially if it be a wet surface, to the air often induces chill and increases shock. During operation every particle of surface not necessarily exposed should be kept dry and covered and extra warm.

CONCLUSIONS

These are but a few examples among many that could be cited, which show not only that it is easy to make mistakes in surgical practice, but that it is extremely easy to make them in the surgery of children; that many conditions may be present in the child which never or seldom occur in the adult; that it is a great mistake to suppose that surgical conditions in the child present the same phenomena, pursue the same course, are followed by the same results and can be handled in identically the same manner as conditions bearing the same name, but exhibited in the adult patient; that many mistakes are made which are entirely unnecessary and inexcusable and would not be made, if the profession possessed the proper knowledge of children and their surgical conditions.

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ABSTRACT OF DISCUSSION

DR. FRANK GENGEBACH, Denver: No doubt all of us could recite instances similar to those recited by Dr. Kelley. I wish to relate an instance in which several mistakes were made. About eight years ago, while I was on duty in the hospital a boy was sent in with a diagnosis of appendicitis. About all I could find was the symptom of pain referred to McBurney's point. After an examination of the chest I found increased cardiac dullness, but the heart sounds were clear. Posteriorly I heard bronchial breathing, and I made a tentative diagnosis of bronchopneumonia. He had irregular temperature, some cyanosis and some dyspnea. The next day the symptoms were, if anything, worse. The area of dullness still persisted and the breath sounds and heart sounds were still as clear as ever. I suggested the possibility of a purulent pericardial effusion. The next day the symptoms were so bad that we did a pericardial paracentesis and withdrew some pus. The surgeon was called in and he accepted my diagnosis as correct, and decided to resect some ribs and empty the pericardial sac. Just before the operation one of my confrères examined the boy and said my diagnosis was incorrect and that I had probably gotten into a sacculated pleuritic effusion. The chest was tapped in several places with negative results. Resection of the ribs was then performed and nearly a quart of pus evacuated. The patient did very nicely and I went off duty shortly afterward. A few days later I was asked to come at once, as the intern was unable to get the surgeon and the boy was in *extremis*. When I reached the hospital the boy was dead. We performed an autopsy and found nearly a quart of pus in the sac. The drainage tube had been taken out too soon, and a reaccumulation of pus had caused death.

DR. JOHN ZAHORSKY, St. Louis: I think the most common mistake I have seen is circumcising the young baby during the first few days of life because he does not pass any urine. Often they pass no urine because they do not get any fluid. Again, I have seen them circumcised on the eighth or tenth day in the presence of intense icterus. I think icterus is a contraindication. Another thing is the applying of strong antiseptics. A recent mistake I saw occurred in an infants' hospital in a case of septic urethritis. An x-ray was taken and it was thought to be a condition of the femur, but it was found to be septic urethritis. I had a case of acute scurvy treated as a case of inflammation of the hip-joint. There was no evidence of scurvy in any way, except that the child had

been taking food for months that frequently produces scurvy. In one case the physician was called to see a child that had stenosis of the larynx and he thought it was diphtheria. He injected four or five thousand units of antitoxin and sent for me to intubate. Just before I arrived the child coughed up a piece of peanut shell. The parents thought that this excellent result was due to the injection. We have often seen posterior laryngeal abscess diagnosed as diphtheria. One child had a stenosis of the nose and the surgeon thought it was laryngeal obstruction. In another case there was a large post-pharyngeal abscess and I was asked to intubate because it was thought to be a laryngeal stenosis.

DR. S. W. KELLEY, Cleveland, Ohio: My primary object in writing this paper was to draw attention to the fact that inasmuch as pediatrics has been cultivated more by physicians than by surgeons, it has come about that through ignorance of pediatrics by certain surgeons and ignorance of surgery by physicians many mistakes are made, and children suffer and sometimes die as a consequence.

RESULTS OF EXPERIENCE WITH NOGUCHI MODIFICATION OF THE WASSERMANN SERO-DIAGNOSIS TEST FOR SYPHILIS*

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In selecting a method for the performance of the complement-fixation test of syphilitic sera, we were influenced by several factors, chief of which were the following:

In studying the different methods carefully and comparing the results obtained by different workers, we were impressed by the apparent accuracy of Noguchi's modification of the Wassermann test as shown by Noguchi¹, Fox², Swift³, and others.

It was also much more convenient to secure human than sheep's blood for immunizing our rabbits and for the corpuscle suspension used in the test.

This paper is not intended to criticize any one method or to compare the efficiency of the different methods; but to give the results and conclusions drawn from the examination of four hundred and ten sera by Noguchi's method.

The majority of the patients were private patients of Drs. Hyde and Ormsby. The control specimens of syphilitic blood were secured from patients in Cook County Hospital.

Technic of the Test.—The technic employed was practically that originally recommended by Noguchi and described by him. A few minor changes were made in the method of securing some of the materials necessary for the test, but these had no relation to, and changed in no respect, the method of procedure in the test.

Five factors are employed in the test: antigen, complement, amboceptor, patient's serum, and human corpuscles.

Antigen.—The antigen used in this series was very kindly furnished by Dr. William T. Mefford, of Chicago. It was an alcoholic extract of a syphilitic liver and prepared by him. It was standardized by us according to the outline given by Noguchi.

Preparation of the Complement.—In the majority of cases, old guinea-pigs give the most satisfactory complement. I have found the most convenient and efficient method of securing the blood to be as follows:

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Noguchi: Serum Diagnosis of Syphilis, 1st Edition, 1910

2. Fox: Jour. Cutan. Dis., xxvii, 338-357.

3. Swift: Arch. Int. Med., iv, pp. 376-404.

The pig is anesthetized, the plicordia shaved and sterilized and with a sterile syringe and needle sufficient blood for the test in hand is withdrawn from the heart. With a little practice and experience, difficulty is rarely encountered in piercing the heart with the needle. As much as 5 c.c. may be withdrawn from a good sized animal; from 5 to 10 c.c. N. NaCl are then injected into the peritoneal cavity in order that the vitality of the animal may remain at par. After the blood is withdrawn, it is permitted to clot at room temperature, the serum is removed with a pipette and placed in the ice box till ready for use. I never use a complement over thirty-six hours old.

The results in the earlier cases of this series clearly indicated that the sera of guinea-pigs varies greatly as to the amount of complement present. This undesirable feature was remedied in the following manner:

In securing the blood, as described, the life of the animal is spared and its health does not seem to be impaired. The serum from each animal is standardized according to Noguchi's directions as to the strength of the complement present; and after the first serum from each animal is tested, the additional labor of standardizing the complement every time a test is made, as suggested by Clark,⁴ is dispensed with. Furthermore, in private laboratories and in isolated districts where difficulty is encountered in securing guinea-pigs, it is very essential that the life of the animal be spared. Some of our guinea-pigs have been bled eight or ten times at intervals of three weeks, and the titer of the complement of each animal remains unchanged.

Preparation of Amboceptor.—A rabbit, preferably an old male, is immunized against human corpuscles as follows:

The blood from a normal individual is obtained by venipuncture from the arm, placed in sterile centrifuge tubes, de-fibrinated by stirring briskly with a piece of firm twisted wire. After being centrifuged the serum is removed with a pipette and the corpuscles washed with normal salt solution. After three washings, the supernatant NaCl solution being pipetted off each time, the suspension is made up with salt solution to the original amount of blood. It is then injected into the peritoneal cavity of a rabbit in increasing quantities and at intervals of five days, beginning with 3 c.c., then 6 c.c., 9 c.c., 12 c.c., 16 c.c., and lastly 20 c.c. Eight to ten days after the last injection, two or three c.c. of blood is withdrawn from the heart in the same way as when taken from the guinea pig, the animal being anesthetized. The serum is inactivated and tested as to its hemolytic properties as suggested and outlined by Noguchi. If the serum is found to contain an amboceptor of from .003 c.c. to .008 c.c. titer, 15 or 20 c.c. of blood are taken from the heart and immediately the same amount of salt solution is injected into the peritoneal cavity. At intervals of ten or twelve days, about 10 c.c. washed human corpuscles are injected into the rabbit. In this manner, an animal producing a good amboceptor can be kept indefinitely, and a fresh amboceptor of sufficient strength is always at hand.

Owing to the fact that so many rabbits after being injected are not satisfactory, it is very desirous that when we secure a good animal it be kept as long as possible. If after one series of injections the serum does not contain sufficient hemolytic properties, another series of injections may give a serum of the desired strength.

Blood to be Tested.—From 1.5 to 2 c.c. of the patient's blood is secured from the lobe of the ear, which has been properly cleansed. A puncture is made with a straight, three-cornered, sharp, surgeon's needle, which makes an opening sufficiently large so that the blood as a rule flows quite freely. It is collected in a glass tube that has been drawn out to a capillary point and bent in U-shape, the capillary arm being much the shorter. The small opening must be sufficiently large so that the lumen will not be occluded by the clotted blood before a sufficient quantity has been obtained. By making a good deep puncture, then gently squeezing the lobe, the drops are forced out; the capillary end of the tube is placed against the drop, which is drawn into the tube by capillary attraction. The tube should be held in the horizontal position. Difficulty is rarely experienced in getting sufficient blood in this way and it is usually less painful and disagreeable to the patient than when

taken from the finger or by venepuncture. The specimen of blood is kept at room temperature for three or four hours, during which time the clot forms and the serum separates. The latter is withdrawn by a pipette, the rubber bulb on the pipette being perforated in order to control the serum better, inactivated by heating to 56° C. for thirty minutes and then placed in the icebox. It is advisable to make the test as soon as possible after the blood is procured. However, when the serum is inactivated and kept in a cool place it may be kept for several days. A strongly positive syphilitic serum was kept in the icebox several months with no impairment of its strength.

Suspension of Normal Corpuscles.—Two graduated centrifuge tubes are desirable in preparing the suspension. Into these is put a definite amount of normal salt solution. Blood is secured from the finger, a tourniquet having been applied and then the puncture made. The blood is permitted to drop into the tubes of salt solution in the proportion of one drop to 4 c.c. salt solution. The number of specimens to be tested will determine the number of drops to be drawn. The corpuscles are washed twice, after which the proper suspension is made. Two tubes are required for each serum to be tested, 1 c.c. of the quarter drop suspension being placed in each. A fresh suspension will usually give better results than corpuscles kept in the icebox for one or more days. Hemolysis is more complete in the control tubes and the contrast in a very mildly positive case more pronounced.

After the material for the test is prepared an outline similar to that in Table 1 is used.

TABLE 1

	Tube number.	Inactivated serum, 18 c.c., 4 cap- illary drops.	Antigen, 1 unit.	Complement, 2 units.	Corpuscle suspen- sion, 1 c.c., ¼ drop.	Amboceptor, 2 units.	Result.
Patients' serum	1	+	+	+	+	+	?
	2	+	0	+	+	+	Hemolysis
Positive syphilitic serum	3	+	+	+	+	+	No hemolysis
	4	+	0	+	+	+	Hemolysis
Normal serum	5	+	+	+	+	+	Hemolysis
	6	+	0	+	+	+	Hemolysis
	7	+	+(2)	+	+	+	Hemolysis
	8	..	..	+	+	+	Hemolysis

The tubes are numbered and arranged in a suitable rack or holder. One unit antigen, two units complement (usually from .03 to .04 c.c.), .08 c.c. of the inactivated patient's serum or four capillary drops are placed in tube 1. The same, with the exception of the antigen, which is omitted, is placed in tube 2. In tube 3 is the same amount of antigen, complement and corpuscle suspension, but positive syphilitic serum is added in place of the serum to be tested. Tube 4 is the same as tube 3, except that antigen is again omitted. Tube 5 contains normal serum with antigen, complement, and corpuscles. The antigen is again omitted in tube 6, the other material being the same. Tube 7 contains two units antigen, complement and corpuscles. Double the amount of antigen is added to this tube to see if it will inhibit hemolysis. Tube 8 contains complement and corpuscles. The tubes are shaken up well, then incubated for one hour at 37° C. Two units of amboceptor are then added to each tube and all the tubes are again incubated at the same temperature. Progress in the process of hemolysis should be closely observed. When hemolysis is complete in the control tubes, 2, 4, 5, 6, 7, and 8, and if there is complete inhibition to hemolysis in tube 3, the result in tube 1 is noted.

In part of the cases of this series additional control tubes were used, in some of which the complement was omitted, and in others the amboceptor was not added. But when the controls, as used in above table, are satisfactory, they seem to be amply sufficient.

The sera from fifty-two patients representing thirty-two diseases other than syphilis gave the results shown in Table 2.

4. Clark: Jour. Infect. Dis., vii, p. 476.

The entire list was negative with the exception of one case of general paresis and seven cases of tabes which were positive; six cases of tabes being negative. There were also thirty cases of hypochondriacal syphilis and thirteen normal sera, all of which were negative.

In Table 3 are two hundred and ten cases in each of which is given the duration of infection, the type of lesion, if any was present, the treatment including both remote and recent, and the result of the test.

TABLE 2.—DISEASES OTHER THAN SYPHILIS

Disease.	Number of Cases.	Result.	
		Positive.	Negative.
Aene.....	1	0	1
Blastomycosis.....	3	0	3
Brain tumor.....	2	0	2
Adenoma.....	1	0	1
Eczema.....	1	0	1
Tabes.....	13	7	6
General paresis.....	1	1	0
Granuloma.....	1	0	1
Dermatitis.....	3	0	3
Choroiditis.....	1	0	1
Cancer.....	3	0	3
Scleroderma.....	1	0	1
Chancroid.....	6	0	6
Keratosis palmaris.....	1	0	1
Salpingitis.....	1	0	1
Urethritis.....	1	0	1
Lichen planus atrophicus.....	1	0	1
Morphea.....	1	0	1
Morphea guttata.....	1	0	1
Hepatic cirrhosis.....	1	0	1
Lymphatic leukemia.....	1	0	1
Cellulitis.....	1	0	1
Psoriasis.....	2	0	2
Papilloma.....	1	0	1
Pruritus hiemalis.....	1	0	1
Osteomyelitis.....	1	0	1
Periostitis.....	1	0	1
Tuberculous arthritis.....	2	0	2
Sarcoma.....	1	0	1
Leucoplakia.....	3	0	3
Dermatitis exfoliativa.....	1	0	1
Pityriasis rubra pilaris.....	1	0	1
Normal sera.....	13	0	13
Syphilis (hypochondriacal).....	30	0	30

TABLE 3.—SYPHILIS †

Case No.	Duration of Infection.	Type of Lesion.	Treatment.		Result of Test.
			Remote.	Recent.	
1	2 years.....	Late.....	None.....	None.....	+++
6	1½ years.....	Late.....	None.....	None.....	+++
8	1 month.....	Early.....	None.....	None.....	+++
9	1 year.....	Late.....	None.....	None.....	+++
10	3 months.....	Early.....	None.....	None.....	++
11	5 years.....	Tabes.....	1 year.....	Intermittent.....	+++
12	1½ years.....	No signs.....	Continuous.....	Continuous.....	+
13	9 months.....	No signs.....	Continuous.....	Continuous.....	+
14	3½ years.....	No signs.....	3 years, Intermit- tent.....	Continuous.....	—
15	6 weeks.....	Early.....	None.....	None.....	+++
17	3 years.....	No signs.....	Continuous.....	Continuous.....	—
20	11 months.....	No signs.....	Continuous.....	Continuous.....	—
22	15 months.....	Late.....	Continuous.....	Continuous.....	—
24	4 months.....	Early.....	Continuous.....	Continuous.....	—
28	2 months.....	Early.....	None.....	None.....	+++
29	3½ years.....	Late.....	2 years.....	None.....	—
30	11 months.....	No signs.....	Continuous.....	Continuous.....	—
31	4 years.....	No signs.....	2 years.....	Few months.....	+
32	2 years.....	No signs.....	Continuous.....	Continuous.....	—
36	8 years.....	No signs.....	Unknown.....	None.....	+
37	2 years.....	Late.....	Continuous.....	Continuous.....	—
39	7 years.....	Late.....	Unknown.....	6 months.....	+
41	6 weeks.....	Early.....	None.....	None.....	—
44	5 years.....	No signs.....	3 years.....	None.....	—
45	2 weeks.....	Early.....	None.....	None.....	++
52	18 years.....	Late.....	Unknown.....	6 months.....	+
53	1½ years.....	No signs.....	Continuous.....	Continuous.....	—
60	1½ years.....	No signs.....	Continuous.....	Continuous.....	+
61	2 years.....	Late.....	2 years.....	None.....	—
62	6 weeks.....	Early.....	None.....	None.....	+++
63	2 years.....	Late.....	2 years.....	2 years.....	+
67	2½ years.....	No signs.....	2½ years.....	2½ years.....	—
68	22 years.....	Late.....	Unknown.....	None.....	+
69	3½ years.....	No signs.....	Continuous.....	Continuous.....	+++
70	2 months.....	Early (ch.).....	None.....	None.....	—
72	3 months.....	Early.....	3 months.....	None.....	+
73	3 years.....	No signs.....	3 years.....	None.....	—
76	1 year.....	No signs.....	Continuous.....	Continuous.....	—
77	16 years.....	No signs.....	1½ years.....	None.....	+
78	Not K.....	Late.....	Unknown.....	1½ years.....	+
79	3½ years.....	No signs.....	Intermittent.....	Intermittent.....	—
82	15 months.....	No signs.....	Continuous.....	Continuous.....	+
83	15.....				+
84					+
85	15 months.....	Early.....			—
86	9 years.....	Tabes.....	2 years.....	Continuous.....	—
87	3 years.....	No signs.....	3 years.....	Intermittent.....	—
88	7 weeks.....	Early.....	None.....	Intermittent.....	+
89	3 months.....	Early.....	None.....	None.....	+++
91	2½ years.....	No signs.....	2 years.....	None.....	+++
93	3 years.....	No signs.....	2 years.....	None.....	—
94	12 years.....	No signs.....	2 years.....	None.....	—
95	1 year.....	No signs.....	Not known.....	2 years.....	+
96	1½ years.....	No signs.....	2 years.....	Intermittent.....	+
97	2 years, 3 mos.....	Late.....	Continuous.....	3 months.....	+
98	7 years.....	No signs.....	3.....	Continuous.....	++
100	2 years, 5 mos.....	No signs.....	2.....		—
102	1½ years.....	No signs.....	2 years.....	None.....	++
103	13 months.....	No.....			—
104	3 years.....	No.....			+++
105	15 years.....	No.....			—
109	3 years.....	No signs.....	20 months.....	None.....	—
111	1 year, 9 mos.....	No signs.....	Continuous.....	Continuous.....	—
112	13 years.....	No.....			—
114	7 years.....	Late.....			++
115	3 years, 4 mos.....	No.....			++
116	7 years.....	Late.....			+
117	9 years.....	Tab.....			+
118	3 years, 9 mos.....	No.....			+
121	15 months.....	No.....			++
123	3 years.....	Late.....			—
125	1 year, 8 mos.....	No.....			—
126	4 years.....	No.....			—
128	2½ years.....	No.....	Continuous.....	Continuous.....	—
129	6 months.....	Early.....	Continuous.....	Continuous.....	++
132	5 years.....	Late.....	Continuous.....	Continuous.....	+++
133	15 months.....	No signs.....	Continuous.....	Continuous.....	+
134	20 years.....	No signs.....	Intermittent.....	None.....	+
135	Denied.....	Alop.....	Not known.....	None.....	+++
136	15 years.....	Headache.....	Much.....	Much.....	+++
137	2 years.....	No signs.....	Continuous.....	Continuous.....	+++
138	9 years.....	Tabes.....	2 years, intermit.....	None.....	++
139	3 years.....	No signs.....	2 years.....	None.....	+
141	3 years.....	No.....			++
142	6 weeks.....	Ear.....			—
145	2 years.....	No signs.....	Continuous.....	Continuous.....	+++
147	18 years.....	No signs.....	2 years.....	None.....	+++
149	14 years.....	No signs.....	4 years.....	None.....	—
149	2 years.....	Late.....	Not known.....	None.....	+++
150	8 years.....				+
151	25 years.....				—
153	10 years.....	Late.....	2 years.....	None.....	—
154	3½ years.....	Late.....	3 years.....	None.....	—
158	6 weeks.....	Early.....	None.....	None.....	+++
159	2 months.....	Early.....	None.....	None.....	++
160	15 months.....	Early.....			++
161	Not known.....	Early.....			+++
163	5 years.....	No signs.....	1½ years.....	None.....	+++
164	38 years.....	No signs.....	Not known.....	None.....	+
166	15 years.....	No signs.....	Considerable.....	None.....	—
168	1½ years.....	No.....			+
169	Congenital.....	Ear.....			+
173	20 years.....	Headache.....	Not known.....	None.....	+++
174	3 years.....	No signs.....	1½ years.....	None.....	+
175	9 years.....	No signs.....	Almost contin- uous.....	Almost contin- uous.....	—
176	2 years.....	Late.....	Almost contin- uous.....	Almost contin- uous.....	+
177	2 years.....	Late.....	Not known.....	None.....	+
180	20 years.....	Late.....	Not known.....	None.....	++
181	4 weeks.....	Early.....	None.....	None.....	—
182	5 years.....	No signs.....	2 years.....	None.....	—
183	1½ years.....	No signs.....	Continuous.....	Continuous.....	—
185	2 years, 3 mos.....	No signs.....	Almost contin- uous.....	Almost contin- uous.....	—
188	3 years.....	No signs.....	Continuous.....	Continuous.....	+
189	10 months.....	Early.....			+
190	5 years.....	No signs.....	2 years.....	Intermittent.....	—
192	8 years.....	No signs.....	3 years.....	None.....	—
193	1 year.....	No signs.....	Continuous.....	Continuous.....	—
194	5½ years.....	Generalized alopecia.....	2½ years.....	None.....	+
195	9 years.....	Late.....	2 years.....	Intermittent.....	+
196	17 years.....	No signs.....	Not known.....	None.....	+
198	5 months.....	Early.....			+
200	5 months.....	Early.....	None.....	None.....	++
201	1 year.....	No signs.....			—
202	2½ years.....	No signs.....	Continuous.....	1 year.....	—
203	6 years.....	No signs.....	Continuous.....	Continuous.....	—
205	3 weeks.....				++
207	2 years.....				—
210	Not known.....	No signs.....	Not known.....	2 years.....	+
213	9 months.....	No signs.....	Continuous.....	Continuous.....	+
214	5 years.....	Late.....	2 years.....	None.....	+
215	2½ years.....	No signs.....	Continuous.....	Continuous.....	—
220	1 month.....	Early.....	None.....	None.....	+++
221	8 years.....	Late.....	Almost contin- uous.....	Almost contin- uous.....	+
222	3 years.....	No signs.....	2 years.....	None.....	—
223	1½ years.....	No signs.....	Continuous.....	Continuous.....	+
224	3 years.....	No signs.....	2 years.....	None.....	—
225	7½ years.....	No signs.....	2 years.....	Intermittent.....	+
226	14 years.....	No signs.....	2 years.....	None.....	—
227	8 years.....	No signs.....	About 2 years.....	Continuous.....	++
229	6 months.....	No signs.....			+
230	7 years.....	Late.....	2 years.....	Intermittent.....	—
231	12 years.....	No signs.....	Moderate amount.....	None.....	—
236	3 years.....	No signs.....	2 years.....	None.....	—
237	10 years.....	No signs.....	2 years.....	None.....	—
238	1 year, 9 mos.....	No signs.....	Continuous.....	Continuous.....	—
240	3 months.....	Early.....			+

TABLE 3.—(Continued)

Case No.	Duration of Infection.	Type of Lesion.	Treatment.		Result of Test.
			Remote.	Recent.	
241	10 years.....				++
242	15 years.....				++
243	9 years.....				+
244	1 months.....				+
245	15 months.....	No signs.....	Continuous.....	Continuous.....	++
246	3 months.....	Early.....	None.....	None.....	++
247	12 years.....	No signs.....	2 years.....	None.....	++
248	15 months.....	Late.....	Continuous.....	Continuous.....	++
249	5 weeks.....	Early.....	None.....	None.....	++
250	15 months.....	Late.....	Continuous.....	Continuous.....	++
251	1½ years.....	Late.....	Almost contin.....	Almost contin.....	+
252	1 year.....	No signs.....			+
253	8 years.....	No signs.....			++
254	6 weeks.....	Early.....			++
255	1½ years.....	No signs.....	Almost contin.....	Almost contin.....	+
256	21 years.....	No signs.....	Not known.....	Intermittent, 11 years.....	+
257	3 years.....	No signs.....	1½ years.....	Intermittent.....	+
258	22 years.....	Late.....	Not known.....	9 months.....	+
259	3 years.....	No signs.....	About 2 years.....	None.....	+
260	3 years.....	Late.....	Continuous.....	Continuous.....	+
261	1½ years.....	Late.....	About 2 years.....	Intermittent.....	+
262	14 years.....	Late.....	Much.....	Much.....	+
263	1½ years.....	No signs.....	Continuous.....	Continuous.....	+
264	7 years.....	No signs.....	3 years.....	None.....	+
265	1½ years.....	No signs.....	Continuous.....	None for 6 weeks.....	+
266	1 year, 9 mos.....	Late.....	Continuous.....	Continuous.....	+
267	3 years.....	No signs.....	Almost contin.....	Almost contin.....	+
268	1 year.....	No signs.....	Continuous.....	Continuous.....	+
269	4 years.....	No signs.....	Not known.....	Little.....	++
270	3 weeks.....	Early.....	None.....	None.....	+
271	10½ years.....	No signs.....	2 years.....	None.....	+
272	9 months.....	No signs.....		8 months.....	+
273	1½ years.....	Early.....	Continuous.....	Continuous.....	+
274	2 months.....	No signs.....		2 months.....	+
275	15 years.....	Late.....	Several years.....	None.....	+
276	6 weeks.....	Early.....	None.....	None.....	++
277	6 months.....	Early.....	None.....	None.....	++
278	2 years.....	No signs.....	Continuous.....	Continuous.....	++
279	20 years.....	Late.....	Not known.....	None.....	+
280	3 months.....	Early.....	None.....	None.....	++
281	4 months.....	Early.....	None.....	None.....	++
282	1 year, 9 mos.....	No signs.....	Continuous.....	Continuous.....	++
283	17 years.....	Late.....	Much.....	Much.....	+
284	11 years.....	No signs.....	About 3 years.....	None.....	+
285	18 years.....	Headache.....	2 years.....	None.....	+
286	5 weeks.....	Early.....	None.....	None.....	++
287	3 years.....	No signs.....	3 years.....	None.....	+
288	1½ years.....	No signs.....	2 years, 3 months.....	None.....	+
289	5 years.....	No signs.....	2½ years.....	6 months.....	+
290	12 years.....	Late.....	3 years.....	Intermittent.....	+
291	1½ years.....	No signs.....	2 years.....	None.....	+
292	17 years.....	Late.....	Much.....	Intermittent.....	+
293	4 years.....	No signs.....	1½ years.....	None.....	+
294	9 years.....	Late.....	3 years.....	None.....	+
295	2 months.....	Early.....	About 2 years.....	None.....	+
296	6 weeks.....	Early.....		1 month.....	++
297	2 years.....	No signs.....	Continuous.....	Continuous.....	++
298	8 years.....	Tabes.....	2 years.....	Intermittent.....	+
299	10 years.....	Late.....	3 years.....	Intermittent.....	++
300	12 years.....	No signs.....	2 years.....	None.....	++
301	8 years.....	No signs.....	Almost contin.....	Almost contin.....	+
302	3 years.....	Late.....	Almost contin.....	Almost contin.....	++
303	15 years.....	No signs.....	2 years.....	None.....	+

† In this and following table — indicates a negative reaction; +, mildly positive; ++, strong; +++, very strong.

TABLE 4.—TREATED CONTINUOUSLY OR IRREGULARLY FROM THE TIME OF INFECTION

Duration of Infection.	Manifest Signs.					No Signs.					Total
	1-6 Mos.	6 Mos. 1 Yrs.	1-1½ Yrs.	1½-2 Yrs.	2-3 Yrs.	1-6 Mos.	6 Mos. 1 Year.	1-1½ Yrs.	1½-2 Yrs.	2-3 Yrs.	
.....	1	..	2	..	3	2	4	11	12	13	48
+	4	3	4	2	1	..	1	4	2	3	24
++	..	2	..	..	1	..	..	1	..	2	6
+++	1	..	1	..	1	..	..	1	1	..	5
Total.....	6	5	7	2	6	2	5	17	15	18	83

Manifest signs: Positive, 77 per cent.; negative, 23 per cent.
No signs: Positive, 26½ per cent.; negative, 73½ per cent.
Total: Positive, 42 per cent.; negative, 58 per cent.

In Table 4 there are eighty-three cases in which the duration of infection was from one month to three years, the patients having been treated continuously or irregularly for the same period of time. Of this number, twenty-six had manifest signs of the disease, 77 per cent. being positive and 23 per cent. negative.

Fifty-seven patients had no signs of syphilis, 42 per cent. of tests being positive and 58 per cent. negative.

In fifteen cases of the above number giving a negative result, treatment was continued till the day of the test. Later when mercury was discontinued for three or four weeks, a positive reaction was secured in those cases where a second test was made. So it is evident that mercury influences the result of the test in a great many cases. In order to eliminate this factor, treatment should be dispensed with for at least one month before the specimen of blood is taken for examination.

It is interesting to note that some cases of syphilis under vigorous mercurial treatment, regardless of the manner in which the metal is administered, will give a strongly positive reaction even when the treatment is continued till the day of the test; others will become negative with but little treatment. So the question of the virulence of the infection becomes a very important one. This not only depends on the activity of the infecting organism itself, but is also influenced by the resistance on the part of the individual. In all probability a patient under treatment, giving a positive test requires a longer period of treatment to effect a cure than one giving a negative result under similar conditions. In the former case, the patient may not be reacting well to treatment or the virulence of the infection may be greater.

TABLE 5.—TWO YEARS OR LESS TREATMENT. DURATION OF INFECTION 3-30 YEARS

Duration of Infection	Manifest Signs.				No Signs.				Total
	3-5 Yrs.	5-10 Yrs.	10-15 Yrs.	15-30 Yrs.	3-5 Yrs.	5-10 Yrs.	10-15 Yrs.	15-30 Yrs.	
.....	1	2	1	2	7	10	6	3	31
+	14	1	4	4	7	2	1	1	34
++	1	1	..	..	2	..	1	..	4
+++	1	..	..	..	1	..	..	1	3
Total.....	2	17	2	6	13	18	9	5	72

Manifest signs: Positive, 81½ per cent.; negative, 18½ per cent.
No signs: Positive, 42 per cent.; negative, 58 per cent.
Total: Positive, 57 per cent.; negative, 43 per cent.

Table 5 represents seventy-two cases of patients having had two years or less of remote treatment, the duration of the infection being from three to thirty years. Forty-five of this number were free from signs of syphilis, 58 per cent. being negative and 42 per cent. positive. The remaining twenty-seven cases had signs of the disease, 18½ per cent. being negative and 81½ per cent. positive.

TABLE 6.—TWO TO THREE YEARS' REMOTE TREATMENT. DURATION OF INFECTION 3-20 YEARS

Duration of Infection.	Manifest Signs.			No Signs.			Total
	3-5 Years.	5-10 Years.	10-20 Years.	3-5 Years.	5-10 Years.	10-20 Years.	
.....	1	1	..	4	7	1	14
+	..	..	3	2	1	2	8
++	..	..	..	..	..	..	..
+++	..	..	1	1	..	..	2
Total.....	1	1	4	7	8	3	24

Manifest signs: Positive, 66½ per cent.; negative, 33½ per cent.
No signs: Positive, 33½ per cent.; negative, 66½ per cent.
Total: Positive, 35½ per cent.; negative, 41½ per cent.

In Table 6, there are twenty-four cases of three to twenty years duration, and from two to three years remote treatment. Of these 58½ per cent. were negative and 41½ per cent. positive.

TABLE 7.—TREATMENT NOT KNOWN. DURATION OF INFECTION 3-30 YEARS

Duration of Infection.	Manifest Signs.					No Signs.					Total.
	3-5 Yrs.	5-10 Yrs.	10-15 Yrs.	15-20 Yrs.	20-30 Yrs.	3-5 Yrs.	5-10 Yrs.	10-15 Yrs.	15-20 Yrs.	20-30 Yrs.	
.....	..	4	..	..	2	..	3	9	4	3	25
+	..	5	2	7	..	..	..	2	1	1	18
++	..	..	1	..	1	1	..	2	..	..	6
+++	..	1	1	..	..	..	..	..	..	..	2
Total.....	..	10	5	7	3	1	3	13	5	4	51

Manifest signs: Positive, 76 per cent.; negative, 24 per cent.
No signs: Positive, 27 per cent.; negative, 73 per cent.
Total: Positive, 51 per cent.; negative, 49 per cent.

Table 7 represents fifty-one cases in which the duration of infection was from three to thirty years, the amount of treatment being unknown. In twenty-five of this number, signs of the disease being present, 76 per cent. were positive and 24 per cent. negative. Of the remaining twenty-six cases without signs, 27 per cent. were positive and 73 per cent. negative.

TABLE 8.—TREATMENT AND DURATION OF INFECTION UNKNOWN

	Manifest Signs.		No Signs.	Total.
	Early.	Late.		
.....	..	4	9	13
+	1	19	2	22
++	2	10	1	13
+++	..	12	..	12
Total.....	3	45	12	60

Manifest signs: Positive, 91½ per cent.; negative, 8½ per cent.
No signs: Positive, 25 per cent.; negative, 75 per cent.
Total: Positive, 78¾ per cent.; negative, 21¼ per cent.

In Table 8, there are sixty cases in which the duration of the infection and amount of treatment are not known. Forty-eight of these had manifest signs, 91½ per cent. being positive and 8½ per cent. negative. The remaining twelve patients were without symptoms of syphilis; 75 per cent. were negative and 25 per cent. positive.

TABLE 9.—NOT TREATED

Duration of Infection.	Manifest Signs.				Total.
	1-6 Months.	6 Mos.-1 Yr.	1-2 Years.	2-5 Years.	
.....	5	..	..	..	5
+	2	..	..	..	2
++	7	1	..	..	8
+++	17	1	3	..	21
Total.....	31	2	3	..	36

Positive, 86 per cent.; negative, 14 per cent.
Note.—In four of the five negative cases the exanthem had not appeared.

In Table 9, thirty-six patients with manifest signs and no treatment gave 86 per cent. positive and 14 per cent. negative reactions. Four of the five negative cases were in the chancre stage of the disease.

From a study of these cases we can readily see that in a large percentage of cases two or three years of treatment even when continuous is not sufficient to eradicate the disease. The patient may have had no signs of his trouble for many years and believe himself entirely cured, yet when the test is made, evidences of the old infection are shown when a positive reaction is secured.

In latent syphilis where the patient has been free from symptoms for a number of years and the disease again makes its presence known by signs or symptoms referable to the skin, the central nervous system, or some one of the viscera, the question at once arises, where has the hidden and concealed focus been located?

There seems to be no doubt that such a focus of infection may be present in a great many cases, and, being walled off by connective tissue in Nature's attempt to overcome the disease, may lie dormant for variable periods of time, until, owing to some unknown etiological factor, the spirochetes and their toxins are taken up by the blood and lymph and carried to all parts of the body. A positive serum test in such cases would be expected even if at some former date it had been negative, owing to the quiescent state of the concealed focus of infection. When these walled-off foci are on the surface of the body, it is not difficult to secure a few drops of serum from the lesion to be used in the test; at the same time serum from the patient's blood can be tested and the difference in strength of reaction noted. In Case 228 of this series, the serum from the blood was negative, while the serum from the lesion on the patient's arm, which had been present five years, gave a strongly positive reaction. In Case 404, both the serum from the blood and that from the lesion were strongly positive. More work along this line will be necessary before final conclusions can be drawn; but we are led to believe that in such cases a protecting wall of tissue is preventing the organism and their toxins from entering the general circulation in any appreciable amount. This condition would explain why we get so many negative reactions in cases where there are evidences of the disease, and positive results where no signs of syphilis can be found; the focus being concealed in some part of the body not accessible to touch or vision. If such a condition is possible, the difficulty in clearing up some of the latent lesions which do not react readily to vigorous specific treatment is more readily understood, as but little if any of the medicinal preparation penetrates the protecting wall of tissue. The palmar and plantar syphilides are striking examples of this class of cases.

CONCLUSIONS

1. In serum diagnosis of syphilis a positive result is an indication that the disease is still active and that more treatment is necessary.
 2. One negative result should not suffice in any suspected case of syphilis. The test should be repeated at intervals of six months for the first year after all treatment is discontinued and afterward at longer periods.
 3. In quite a large percentage of cases two years of specific treatment, regardless of the manner in which it is administered, is not sufficient to insure a negative result from the serum test.
 4. The tendency at the present time is rather to give insufficient treatment in syphilis than to over-treat the disease.
 5. The Wasserman test is of inestimable value in obscure cases of syphilis, and in differential diagnosis.
- 100 State Street. ..

Origin of the Term "Stone Blind."—A correspondent writing to the *Lancet* of July 23 refers to the words "stone blind" as a popular term for complete and hopeless blindness. He states that he has been unable to trace its origin but imagines that it first came into use in the days before glaucoma was understood as a pathologic process. At that time, he says, it was common knowledge that an eye of "stony hardness" had no chance of sight, and he quotes Platner, who in 1745 spoke of the eye—"oculus qui caligat.....durusque fit." The explanation is plausible and interesting.

TWO YEARS' EXPERIENCE WITH THE WAS-
SERMANN REACTION IN
PRACTICEA PRELIMINARY REPORT ON FIFTY-SEVEN CASES TREATED
FROM THE STANDPOINT OF THE WAS-
SERMANN REACTION *

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The years 1903, 1905 and 1907 each marks a definite step in the advancement of our knowledge of syphilis.

With Metchnikoff's and Roux's inoculation experiments on the higher apes in 1903 the scientific world again renewed its efforts to discover, if possible, the cause of syphilis, and when Schaudinn and Hoffmann announced the *Spirochæta pallida*, in 1905, the diagnosis of primary syphilitic lesions was placed on a definite basis.

The establishing of the *Spirochæta pallida* as the etiologic factor in syphilis has been fraught with much criticism, because the discovery did not conform to Koch's postulates. The work of Metchnikoff, Roux, Neisser and many others stands out in bold relief and has put the specificity of the *Spirochæta pallida* on so firm a basis that, notwithstanding their inability to culture the organism, it is now accepted by syphilographers the world over.

The complement-fixation test as discovered by Bordet and Gengou, and elaborated by Wassermann, Neisser and Bruck, has brought us in still closer relation with this universal disease. Like the *Spirochæta pallida*, it has had its full share of criticism and condemnation, a large part of which was due to imperfect technic and application. That it is absolutely specific and of immense clinical value is a conclusion that can be drawn from the many reports that have appeared in the literature and the thousands of cases that have been examined.

The Wassermann reaction is valuable for both the general practitioner and the specialist. Neisser¹ says that the Wassermann reaction reveals syphilis with such certainty that nothing would induce him to dispense with it now.

Positive findings are a distinct indication of existing syphilis, and repeated negative findings are extremely valuable for a favorable prognosis, although the test is not infallible in every case. It is as important for the general practitioner as is the microscope for the determination of gonorrheal secretions. The Wassermann test is most valuable for the syphilographer, not only as an aid in the diagnosis but also in the treatment of syphilis. Until the discovery of the *Spirochæta pallida* and the application of the Wassermann test little indeed was known about this universal disease, save what could be seen externally and on the mucous surfaces. With the introduction of these two means of diagnosis we have at last something tangible to work with. It is possible now to make an exact diagnosis and to begin treatment at once, telling the patient with some degree of assurance what his future may be.

Hönc² analyzes the findings in 1,512 cases of certain and of suspected syphilis and in 320 non-syphilitic

patients. The findings confirm the specific importance of the test and show that energetic mercurial treatment is able to transform a positive into a negative reaction in a large proportion of cases.

A positive reaction was obtained in 23 out of 107 prostitutes with apparently no signs or history of syphilis.

Boas³ has applied the Wassermann test in 1,345 cases. He states that positive findings after systematic treatment of syphilis are invariably the precursors of a recurrence. The serum test applied once a month in the first years after infection, and the resumption of treatment in case of positive findings, will certainly have a marked influence in warding off recurring trouble.

Purkhaner⁴ reports from Neisser's clinic the findings of the Wassermann test as applied to 5,200 cases of syphilis. The findings were positive in inverse proportion to the number of intermittent courses of treatment that had been applied in the individual cases. The more energetic the treatment, the smaller the proportion of positive reactions. A single course of treatment does not seem to have much effect on the outcome of the test, but the general impression is all in favor of a thorough treatment in the first months and years after the infection.

W. Scholtz⁵ says that the Wassermann reaction is generally negative from the third to the sixth week after infection, and as a consequence it is only of slight value for early diagnosis.

Therapeutically the Wassermann test is of importance because it indicates that it is possible in a degree to cure syphilis by abortion, but the proof cannot be substantiated without further observation, extending over years.

Jesonek and Merowsky⁶ say that we should bend every effort to change a positive to a negative reaction, because every syphilitic with a positive reaction is in danger of tabes and paralysis.

The earlier the treatment commences and the more energetically it is carried out the sooner will a positive reaction become negative. Chronic intermittent treatment unquestionably gives the best results, but we cannot as yet say whether this can make a negative reaction permanent.

It is true that these discoveries may dull the diagnostic shrewdness of the clinician and in time lessen his ability, but, like all biologic tests, they should be used as adjuncts, not as first aids, in diagnosis.

I have been working two years with the Wassermann reaction in practice. I began with the original Wassermann technic and have adhered to it throughout the whole time.

In reporting these cases, care has been taken to note carefully the results in making the Wassermann test. Alcoholic extract of a liver of a congenital syphilitic was used as an antigen, with plenty of known normal and syphilitic serums as controls, and each tube was tested twice with different strength antigens, each acting as a control for the other.

For convenience I have adopted the following classification:

Group I. New cases treated after the biologic method.

A. Chancre, before the Wassermann reaction was positive.

B. Early secondaries, after the Wassermann was positive.

3. Berl. klin. Wehnschr., March 29, 1909, xlv, 577.

4. München med. Wehnschr., April 6, 1909, lvi, 637.

5. Deutsch. med. Wehnschr., February, 1910, No. 5, p. 215.

6. München med. Wehnschr., 1909, lvi, 2291.

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. München. med. Wehnschr., May 25, 1909, lvi, 1057.

2. Berl. klin. Wehnschr., May 10, 1909, xlv, 862.

DR. M. L. HEIDINGSFELD, Cincinnati: There is one phase of the Wassermann test to which I wish to direct special attention. Cases of syphilis, after treatment has been instituted, frequently develop a negative Wassermann, sometimes after very little treatment. On the other hand, other cases, in spite of very vigorous treatment, will show a decidedly positive reaction for a long period. This is probably due to the fact that the Wassermann test is a test of "antibodies," or the reaction of the system against syphilis, and not of the virus itself. In two cases of malignant syphilis on my service at the Cincinnati Hospital, in which both patients developed early rupia, and the malignant nature of the disease was well defined in all its aspects, the Wassermann reaction was negative from the very beginning, and in spite of the most energetic mercurial and arsenical treatment, it never gave a single positive reaction after repeated tests. One of the patients died eighteen months after infection; the other is still alive, but is in desperate straits. These patients have never reacted against the disease; probably no antibodies were formed, and the Wassermann test was therefore negative.

DR. J. A. FORDYCE, New York: I have watched the results of the Wassermann reaction during the past two years in my private and public practice, and these observations have led me to the belief that it is a method of great diagnostic importance. Regarding its practical or therapeutic application, it seems to emphasize the fact that mercury given hypodermically or by inunction has a greater influence over the reaction than mercury given internally. Furthermore, the earlier the treatment of the disease is begun the sooner the reaction becomes negative. It may be stated conservatively. I think, that the treatment of syphilis as generally carried out is very inefficient; that mercury is given in too small doses and that the use of potassium iodid is only exceptionally indicated in the secondary stage of the disease, though frequently it is relied on by practitioners from the beginning.

DR. WILLIAM LITTEBER, Nashville, Tenn.: I have made Wassermann tests, using different antigens, in twenty cases of pellagra. Three out of the twenty reacted positively. In one out of the three positive cases there was a history of syphilis; in another, an indefinite history of lues. I do not believe that the Wassermann reaction will be positive in non-syphilitic cases of pellagra; and this is in accordance with the experience of Dr. Howard Fox, although Bass has reported positive reactions in practically every case examined by him. In our cases we employed both the original Wassermann and the Noguchi tests, and both gave uniformly negative results.

I have found that in some cases, the use of the protoiodid of mercury internally does not obliterate the Wassermann test, but when we change to the inunction method, it usually becomes negative in a fairly short time. In some cases, the inunction method seems to be more efficacious than the injection method, and *vice versa*. We cannot be absolutely positive which is the better method, but I agree with Dr. Fordyce that either is preferable to the internal method.

DR. WILLIAM T. CORLETT, Cleveland: I think we are generally agreed as to the value of the Wassermann reaction in syphilis. A year ago I spent some weeks in the laboratory of Professor Finkler at Bonn, working up the Wassermann reaction. The difficulties in carrying out the reaction in private practice are great, and I think it should be largely left to men doing laboratory work. This applies not only to the technic, but to the skill and experience necessary to read the reactions aright. There is another point I wish to refer to, and that is the influence the Wassermann reaction may have on our therapeutic methods in the treatment of syphilis. For a number of years, my observations have taught me that cases of syphilis treated with any form of iodine during the early stage of the disease run a more protracted course and prove more obstinate to treatment than do cases in which iodine has been withheld. Further, I have long been convinced that mercury is the only drug that has any definite and constant influence in eliminating the syphilitic virus. Both observations have been verified by the Wassermann reaction.

DR. ALFRED SCHALEK, Omaha: I wish to report a case that came under my observation lately. The case was one of syphilis, pursuing a very malignant course, but under persistent

treatment with inunctions and injections the symptoms finally cleared up. The patient subsequently went to Europe where he saw Prof. Neisser, who had a Wassermann test made, which proved negative. A similar test was afterward made by Dr. Schamberg of Philadelphia and was again negative. Shortly after that the patient developed symptoms pointing to a syphilitic brain lesion, and he is in a hopeless condition today. Our indications are clear when the Wassermann test is positive, but how do we stand as to the continuation of treatment when it is negative?

DR. E. H. MARTIN, Hot Springs, Ark.: I was very much interested in the statement made by one of the speakers that the spirochetes might remain sealed up in the connective tissue for a number of years, and that under those conditions, mercury was not effective. I was also interested in the statement made by Dr. Corlett that mercury was the only drug that was effective in controlling this disease during its early stages. That I believe is a mistake. We have in the arylarsonates a powerful remedy for the treatment of early syphilis. I have used the various preparations of the arylarsonates in about 200 cases of syphilis, and while I am not prepared to say that with them I am satisfied to get along without mercury in the treatment of this disease, yet I have found them very effective. Under the use of these remedies the lesions cleared up in at least one-third of the time that they would with the iodids, and in one-tenth of the time that they would with mercury alone. Arsenic, we know, has the power to penetrate the tissues, and hence may destroy spirochetes sealed up against mercury. In the case reported by one of the speakers here today, where the Wassermann test gave a negative reaction in the face of marked pernicious syphilis, I can almost promise him that the symptoms in such a case will respond to the arylarsonates.

DR. ALFRED SCHALEK, Omaha: In the case I reported, the symptoms failed to yield to any of the preparations of arsenic.

DR. EDWARD BOWE, Jacksonville, Ill.: I am more particularly interested in this subject from the standpoint of mental and nervous diseases, as I have seen a number of cases of tertiary brain lesions. Presuming, as a neurologist, that one is called on to make the differential diagnosis between a specific lesion of the brain and a brain tumor, one can readily appreciate the importance of having such a test as the Wassermann reaction to fall back on. In many such cases we get a very obscure history of syphilis, or none at all. Given a history of syphilis, the treatment may have been inadequate or inefficient, and under such conditions you can readily see the value of such a diagnostic test as this. If the reaction was positive, it would give us a direct indication as to treatment and aid us in the prognosis. The same applies in dealing with obscure cord lesions.

DR. OLIVER S. ORMSBY, Chicago: In our office it has now become a routine measure to examine all doubtful cases of syphilis by the serodiagnosis test. In cases in which syphilis is shown to exist, the treatment should be continued as long as the test is positive. Some authorities say that a patient with syphilis should be treated as long as he lives; others differ from this view. It is evident that in some individuals syphilis persists for many years, while others recover promptly. The results of the Wassermann test confirm this. Some cases show a negative reaction after a few months, while others persist in giving a positive reaction in spite of long-continued treatment: the latter are usually of the virulent type. As an example the following case is cited: A patient developed a profuse exanthem of the florid type; this disappeared under energetic treatment, mercury being given by injection, inunction and internally at different times during two years of constant treatment. Three months after he was discharged his blood was tested and gave a positive Wassermann reaction. At the time the patient was apparently healthy and had exhibited no symptoms of syphilis since the first outbreak two years previously. Before we had time to institute further treatment, he developed paralysis of the third nerve, and since then he has had almost uncontrollable symptoms. The Wassermann test is a most valuable addition as an aid in diagnosis and should always be considered in conjunction with our knowledge of the clinical manifestations of syphilis.

Dr. V. J. COHENOUR, Joliet, Ill.: In reply to Dr. Bowe I would say that a patient may have a non-syphilitic brain tumor and still have syphilis, and in such a case the Wassermann reaction would not throw much light on the differential diagnosis. If the case is one of brain syphilis without a brain tumor, the chances are that the symptoms will clear up under anti-syphilitic treatment, whereas in brain tumor you would get at best but a temporary remission of the symptoms. The fact I wish to bring out is that we may have a combination of these two conditions. I have seen individuals with chronic syphilis in whom the Wassermann test gave a negative reaction at one time, and a strongly positive reaction perhaps six months later. In some cases of gumma, for instance, where a negative reaction is obtained, the administration of potassium iodid for some time may be followed by a positive Wassermann, indicating that the drug has stirred up some of the syphilitic products. As to the curability of syphilis, I think that when once a man has syphilis, he always has syphilis. I have examined men who were treated in the ordinary way for ten or fifteen years, and thoroughly treated, and still, in spite of that, they showed decided symptoms of the disease later on. I have found that by the inunction method of treatment the reaction is decidedly quicker than by any other. Next to this, I favor the injection method, and lastly, internal treatment. The test I prefer is the unmodified Wassermann, and I do not find it particularly difficult.

Dr. J. F. WATGII, Chicago: My experience with this test in the field of nervous diseases has been rather limited. In the series of cases reported, there were thirteen cases of tabes, seven being positive and six negative; and two cases of general paresis, both positive. In cases of suspected syphilitic involvement of the central nervous system, the test is of the greatest value. However, a negative result does not preclude the possibility of syphilis, as the results of practically all investigators in latent syphilis will prove. Judging from the effect of treatment in converting a positive into a negative result in a given case, it would seem that the most efficient manner of administering mercury is by injection or inunction. Even after a negative result is secured and the patient is apparently free from his disease, the test should be repeated at intervals for a number of years. In this manner it is quite probable that many of the late manifestations of the disease can be prevented. Future work along this line will undoubtedly disclose interesting facts.

Dr. B. C. COMBES, Chicago: In order to get accurate results from these tests we must of course have a good laboratory, and the technic must be faithfully carried out. When the result is positive, it demands early and energetic treatment.

THE TREATMENT OF STAMMERING *

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CLASSIFICATION

In any consideration of the treatment of stammering, it is convenient and desirable to make three classes. In the first class we put all those nervous children who present any abnormalities of speech development; in the second class, those who have begun to show a tendency to stammer by an occasional hesitancy of speech, and in the third class, the confirmed stammerers, those who not only stammer but who know that they stammer, and whose natures have been deeply influenced by it. There are three stages of the affection, therefore, the prodromal, the acute, and the chronic. The first

stage is generally characterized by the psycho-physical condition called nervousness, and the speech is rapid and blustering. The second stage is like the first, but it presents the added phenomena of speech hesitation and a more or less frequent repetition of certain sounds. The third stage may represent all the characteristics of the first two, but in a more pronounced form, and it presents in addition all those phenomena both mental and physical which together constitute what may be called the stammering habit.

First Stage.—What shall we do for the nervous child who inherits, it may be, a tendency toward stammering, whose ideas are confused, whose speech is rapid and blustering and whose environment is such as to aggravate all these unfortunate conditions? The remedy is not far to seek, but we must admit that it is not always so easy of application. The time to cure stammering is before it begins. Children should never be allowed to stammer, and the so-called habit never should be formed.

Speech is an acquired faculty and stammering is an acquired defect. To save the child from the second and third stages it is manifest that he must be taken out of his unfavorable environment; he must not be allowed to hear rapid and blustering speech, which, by the way, is common in families of which stammerers are the offspring, and by no means must he be allowed to hear others stammer, because of his natural and almost perverse inclination to imitate anything which is unusual and undesirable. By the same reasoning he must have good examples of speech, he must be taught to do things quietly and in order, to think of only one thing at a time, and to speak with deliberation. Don't scold the child because he is already in an excited condition and scolding will merely add fuel to the flame. Don't make fun of him or call his attention to his defect, for this will embarrass him and lead to a nervous dread of future trouble. Always keep in mind the fact that the child is striving to combine the art of ideation with that of oral expression. It is all new to him. His thoughts come rapidly and the words with which he attempts to clothe them tumble out spasmodically, somewhat as water comes out of a bottle. He tries to say everything at once. He cannot arrange his thoughts in order and he has difficulty in selecting suitable words for their expression. The vocal and articulating organs share in the general confusion and they soon begin to lose their normal automatic action. It is at this point that careful treatment will almost surely prevent a further development of the trouble.

The treatment should begin at the kindergarten age, and it could be given in the kindergarten school by especially trained teachers, but the work would be greatly hampered, if not altogether negatived, by the home environment of such children, in which confusion and excitement usually reign supreme. The ideal place, therefore, for such a patient would be in a special hospital school, away from his mother and father, and brothers and sisters, who together, unwittingly of course, are oftentimes directly responsible for his condition, and who if given a little time and opportunity, will surely lead the unfortunate one into the second stage.

The Second Stage.—I have described the second stage as that of speech hesitation and frequent repetitions of sounds. The treatment of this stage should be similar to that of the first, but some additional measures must now be adopted. In the first place the patient must be speedily cured in order to save him from the mental complications attendant on the third stage of the affec-

* Read before Chicago Medical Society April 6, 1910.

tion. It is cruel to send such a child to school, and as a rule he should be taken out of his home and kept in the atmosphere of good speech. He should be drilled in the elements of speech, and given respiratory, phonatory and articulatory exercises. The child should be trained in the natural easy use of the speech mechanisms, and this should all be done without any reference being made to his tendency to stammer. Indeed it is quite possible to cure him of the affection at this stage without his really knowing that he had it.

Third Stage.—Coming now to the third stage of stammering. It is in this stage that we find the affection in its fullest development and with all its psychological variations. The ultimate cause, whatever it was, may have long since disappeared, but the disastrous results are plainly manifest in the character and disposition of the afflicted one. Mentally, physically, and sometimes also morally, there seems to be no health in him, and I know of no disease which so taxes the skill and ingenuity of the physician as does this combination of nervous derangements.

ESSENTIALS OF CURE

The stammerer himself is of the opinion that he is organically and radically different from other people, and he is skeptical as to the outcome of any line of treatment or practice. If you, perchance, succeed in removing his skepticism, he even then has scarcely enough will power or energy to pursue any course of treatment which may be prescribed for him. His great desire oftentimes is to be cured quickly and without any effort on his own part. To whom shall such a one turn for relief? "Certainly not," as Alexander Graham Bell says, "to any pretender who veils his method in convenient secrecy, nor to any who profess to 'charm' away the impediment—or to effect a cure in a single lesson! Not to any whose 'system' involves drawing, sniffing, whistling, stamping, beating time—all of which expedients have constituted the 'curative' means of various charlatans; nor to any who bridle the mouth with mechanical appliances—forks on the tongue, tubes between the lips, bands over the larynx, pebbles in the mouth, etc., etc. The habit of stammering can only be counteracted by the cultivation of a habit of correct speaking founded on the application of natural principles."

I quote further from Dr. Bell because his thought on the subject concurs so thoroughly with my own: "But with the best assistance the stammerer must work out his own cure. He cannot be passive in the matter. He must clearly apprehend the principles on which he is to proceed and diligently apply them. Nor must he in this depend too much on the watchfulness of his instructor, but must learn to watch over himself. His perfect release from the habit will require time, patience, and hopeful, energetic effort."

How shall we assist the stammerer to work out this cure? That is the problem. We are somewhat in the position of a watchmaker who is handed a chronometer that will not keep time. It is not enough for him to say that the steel is not properly tempered and that the springs are not properly annealed, but he must make the watch go. So it is not enough for us to say that the stammerer has inherited or acquired certain disabilities, but we must show him how to overcome them or to supplant them with desirable mental and physical characteristics.

If he has weak will power, we must show him how to strengthen it. If he lacks the faculty of attention or concentration, we must show him how to acquire it. If

he has grown morbidly introspective and self-conscious, he must be shown how to overcome this condition. If he is suffering from fixed ideas and obsessions, if he has become neurasthenic or psychasthenic, as many of them have, he must be cured of these diseases before he can possibly be cured of his speech malady. In other words, he must learn to control himself before he can hope to control his speech.

SPECIFIC METHOD

As to specific methods, I should say that it is not so much the method as its application that is of value. Of course, there are methods good and bad, and there are methods which are better than others, but the best methods are those the application of which will result in the development of the proper mental attitude on the part of the patient, and incidentally in the highest efficiency of voice and speech. Mental culture, voice culture and speech culture must form the basis of every rational method of treatment. The stammerer should acquire a high degree of vocal power and the greatest possible articulatory skill and efficiency. These he can get, of course, only with the assistance of an experienced teacher. He thus learns to play on his own instrument as the pianist learns to play on the piano, all the time acquiring skill and proficiency by well directed and persistent practice.

Now what are the special exercises that have been found to be the most suitable for this purpose? I shall have time only to refer to them and their application. In a general way, the stammerer should learn the "physiologic alphabet" theoretically as well as practically. He should learn exactly how to produce and articulate, if you please, every one of the elementary sounds of speech and he should learn to hear them accurately and know when he himself produces them accurately. In other words, he must develop his ear for speech before he can make any progress in speech culture.

He must also learn the exact musculature of speech, and when an untoward action or coordination appears in any of the three peripheral mechanisms, it should be pointed out to him, and suitable exercises given to correct it. In this way the patient gradually learns how to regulate his nervous energy, how to inhibit certain hitherto overacting nerve impulses which have resulted in the muscle spasms characteristic of stammering, and how to distribute the innervations to the various mechanisms in their proper order and intensity.

One difficulty with the stammerer is that he tries to speak entirely with the articulatory mechanism, apparently ignorant of the fact that the effort should be chiefly directed to the vocal mechanism. His attitude in this respect towards singing is more nearly what it should be. In singing he directs his attention to the vocal mechanism and therefore he rarely stammers.

Having learned the physiologic alphabet, or table of sounds, we have found it good practice to drill the patient in phonetic reading, and what Dr. Bell has called syllabication. Normal speech, of course, is largely automatic and independent of any conscious interference. Moreover, it is acquired originally by imitation and without any conscious effort. Hence it is that when the child stammers he knows neither why he does it nor how to stop it. He may be helped to stop it, as I have said, during the first and even during the second stage without his ever having known that he did it, but in the third stage it is generally necessary to have him thoroughly reorganize his methods of speech, to have him bring all the processes well within the domain of his consciousness and to teach him to control them entirely

by volitional effort. This reorganized or relearned speech must then be practiced until great facility has been acquired in the new physiologic use of all the muscles, respiratory, phonatory, and articulatory, and this should be done in precisely the same way and for much the same reason that the student of the piano practices finger exercises.

Indeed the stammerer should be taught to regard his organs of speech as an instrument apart from himself, on which he must learn to play just as the pianist learns to play on the piano. This facility of speech is absolutely essential to the stammerer. He must know that he can control his speech; not only so but he must know that he knows that he can do it, in order that in the future he may be able to overcome the distracting influences of the fear of stammering which always lurks in the mind long after the cure has been accomplished. The stammerer himself is oftentimes the last one to be convinced that he is cured, and hence it is that we have here a field for the practice of psychical as well as physical therapeutics.

STAMMERERS AND THOSE WHO STAMMER

Finally, as someone has said, there are those who stammer and those who are stammerers, meaning, I suppose, that we all stammer to some extent, but the stammerers are those who are conscious of their difficulties and whose cerebral activities are disturbed by them. Those who stammer are the ones described as being in the first and second stages of the affection, and the stammerers belong to the third or chronic stage.

Those who stammer may be unconsciously relieved of their difficulties by simple elocutionary measures, consisting of training in respiration, phonation and articulation, while the stammerers must reorganize their speech by means of the same elocutionary measures, plus training in mentalization. I always ask my assistants to train the patients in these four things, respiration, phonation, articulation and mentalization, entirely regardless of the fact that they are stammerers, and I tell them that the object of the training should not be primarily to cure stammering but rather to develop good voice, facility of articulation and the right mental attitude, and when this is done all other desirable things will be added thereto.

The stammerer naturally cares little for voice and speech culture, but his chief desire, as I have said, is to get rid of his difficulties and the shorter the cut to this goal the better it suits him. His mental attitude in this respect must be changed. He must become interested in speech culture for its own sake if he would be safely and permanently cured. It is this faulty mental attitude that explains why stammerers are attracted to the various "get cured quick" schemes such as are in vogue, of course, for purely mercenary ends.

PROGNOSIS

I am often asked how long it takes to cure stammering, and in answering this question I am reminded of the following little incident: An old book gilder was asked how long it would take to learn his art and he said, "Some learn it in five years and some never learn it." I do not wish to leave you with the impression that there are some people who never can be cured of stammering, but I mean to say that there are people so organized constitutionally that the acquirement of any degree of facility of speech is an exceedingly laborious task, and for them to overcome a defect like stammering requires long and persistent practice of physio-

logic methods. The prognosis, however, is always good when the patient can be induced to do the things that are essential to the reorganization of his speech, and there can be no more healthful physical exercise or efficient mental discipline than that which comes with the study and practice of speech culture.

1627 Walnut Street.

A CASE OF OPIUM-POISONING

E. B. CLAYBROOK, M.D.
CUMBERLAND, MD.

The following case is reported, because the man was in such profound stupor, and seemingly in such a dangerous condition, and yet responded so promptly to the treatment instituted, as to give no trouble or uneasiness to those in attendance.

History.—J. W. S. was admitted to Alleghany Hospital on June 30, 1910, with no history except that he was taken from a train on the way from a near-by town, in profound coma. There happened to be in the hospital a patient from the same town, who knew the man, and said that he was a painter subject to painter's colic and a hard drinker.

Examination.—The man was in profound coma, pupils pinpoint, pulse soft and regular, respiration three to the minute, temperature normal, urine normal. The diagnosis of opium-poisoning was made.

Treatment and Result.—The stomach was washed out, and the bladder emptied. Supra-orbital pressure and castigation with a wet towel brought no response whatever. The left median cephalic vein was opened for saline transfusion and five pints of saline solution in which $7\frac{1}{2}$ grains of caffeine citrate had previously been dissolved, were allowed to flow in rapidly through an eye-dropper. The man made no response to any attempts to arouse him, or to the incision and the handling of the wound, but began to writhe as the stitches were put in; and by the time the wound was sutured, sat up in bed and talked rather clearly. His respiration complete and he gave no further trouble. It was afterwards found on questioning him that his home doctor gave him a "good strong" hypodermic before he left home and some powders of morphin with directions as to taking them. As the pain was not relieved in a few minutes from the hypodermic he then "took all the powders at once" and boarded the train.

61 Washington Street.

NOTES ON CERTAIN TESTS FOR INDICAN IN THE URINE

H. I. DAVENPORT, A.M., M.D.
AUBURN, NEW YORK

The following notes are published as a caution to those who make routine examinations of the urine for indican. It is sometimes necessary to preserve the urine for a time before the test can be made, and for this purpose formaldehyd solution should not be used; at least not when bleaching powder or potassium permanganate is employed as the oxidizing reagent. I have been unable to find note of this in the texts at my command (Emerson, Wood, Simon), nor have I seen attention called to the fact in any published article. Emerson says, however, "A person must be wary in a chemical examination of such a urine" (i. e., one preserved with formaldehyd solutions).

The tests used are the ordinary ones, as follows: Ten c.c. of concentrated hydrochloric acid is poured into a test-tube containing a like amount of the urine to be tested. This is mixed and potassium permanganate and

chloroform added alternately drop by drop, agitating, until about 2 c.c. of chloroform and a sufficient quantity of the permanganate have been added. The other test is the Jaffe test. Ten c.c. of concentrated hydrochloric acid are placed in a test-tube and a very small drop of fresh concentrated solution of ordinary bleaching-powder is placed on the lip of the tube. The hydrochloric acid is poured into a tube containing 10 c.c. of the urine, carrying with it the drop of bleaching-powder solution. Two c.c. of chloroform are then added. In either of the tests after the addition of the chloroform the tubes are slowly inverted and the chloroform takes up the indican, the result being a bluish color of the chloroform layer.

CASE 1.—An acid urine containing a rather large amount of indican (both tests) was divided into two portions and the one left unpreserved, the other preserved with formaldehyd solution (one drop of the 40 per cent. solution to 4 fl. oz. of urine).

In testing these specimens on the following day it was found that the unpreserved urine gave the indican test as on the previous day while the one containing the formaldehyd did not show the slightest color in the chloroform layer. Both tests were employed with the same result. The urines were acid.

CASE 2.—This patient was taking potassium iodid and the chloroform layer showed the purple color due to the mixture of the pink color of the iodine and the blue of the indican. The urine was divided into two portions as before. The indican tests had shown a very large amount present. To one portion was added formaldehyd solution as before; the other was left unpreserved. The next day the unpreserved portion gave both tests as before, while the one containing the formaldehyd solution showed the pink color due to the iodine and a very slight trace of the blue. These two specimens were again set aside and tested on the tenth day. At this time the unpreserved urine gave no trace of indican with either test and the preserved urine showed only the pink color of the iodine. The urine remained acid in all cases.

CASE 3.—This patient was suffering from acute pulmonary tubercle, phlogia and the urine was loaded with indican (first test only). The specimen which was acid was divided into three portions; one was left unpreserved, one was preserved with formaldehyd solution as above; the third was preserved with chloroform in the proportion of one part of chloroform to twenty-five parts of urine. The one to which the formaldehyd solution was added was tested immediately with a negative result (both tests). On the tenth day all were tested; the unpreserved urine was alkaline but showed indican in almost the same amount as at first; the specimen preserved with formaldehyd solution showed no indican, the specimen preserved with chloroform was acid and showed as much indican as the original. (Both tests were used on all specimens).

CASE 4.—Acid urine with a fairly large amount of indican. This was divided into two portions and one left unpreserved. After eight days the specimen preserved with chloroform showed indican, but the result in the unpreserved specimen was doubtful. Both were acid and were acid on the fifteenth day when tests showed indican present in the one preserved with chloroform but absent from the unpreserved specimen. (First test only).

CASE 5.—Acid urine with considerable indican, divided into three portions and formaldehyd solution added to each in the proportion of 1 to 800, 1 to 150, 1 to 75, respectively, as nearly as could be approximated. Tested at once, the first specimen showed some indican but not nearly so much as the untreated urine; the second specimen was doubtful; the third (i. e. 1 to 75) was negative.

CASE 6.—Acid urine with small amount of indican. Formaldehyd solution added to three portions in the proportion of 1 to 1,700, 1 to 700, and 1 to 500, respectively, as nearly as could be approximated. Tested after five days, the first specimen showed some indican, the second result was doubt-

ful, the third specimen negative. After ten days the same specimens showed, the first positive, the second and third negative. (The first test only was used).

In all forty-eight cases were tested, but the results were in no case at variance with the following conclusions, and only selected cases are mentioned above.

CONCLUSIONS

1. Formaldehyd added to urine as a preservative interferes with the tests for indican above described (Cases 1, 2, 3, 5 and 6).
2. This interference seems to be in proportion to the amounts of formaldehyd solution and indican present (Cases 5 and 6).
3. Formaldehyd does not seem to interfere with these tests for the presence of iodine (Case 2).
4. Chloroform as a preservative does not seem to interfere with these tests for indican (Cases 3 and 4).
5. The urine should be examined fresh, if possible, as the indican may disappear from an unpreserved urine on standing (Cases 4 and 2).

The following case is also of interest in this connection:

A patient showing much indican in the morning specimen on each of two successive days was given, on the second day, ten grains of hexamethylenamin in two-grain doses two hours apart. The morning specimen on the third day showed no indican by either of the above tests. No more of the drug was given, and on the fourth day the morning specimen showed considerable indican while on the fifth and sixth days the amount of indican was about as on the first two days. The source, or rather cause, of the indicanuria in this patient could not be determined.

We must conclude from this case that if the patient is receiving hexamethylenamin these tests for indican may fail to show any present, and this failure is probably due to the influence of the formaldehyd contained in the drug.

67½ East Genesee Street.

SUCCUSSION SPLASH IN DIVERTICULUM OF THE ESOPHAGUS

C. M. COOPER, M.B., CH.B. (EDIN.)
SAN FRANCISCO

In a recent paper I referred to the presence of a succussion murmur in one patient with a pharyngo-esophageal diverticulum. The finding of this splash in three other patients similarly affected would seem to indicate that this sign is of distinct value in the clinical investigation of patients. As the real condition in all four of these cases had escaped recognition, a description of this maneuver may be of value.

The patient is asked to drink as much water as he conveniently can, preferably at a time when the sac is most likely to be empty, i. e., the early morning. Then the patient's larynx is grasped by the hand and the soft tissues of the neck vigorously shaken. During this time the patient is requested not to breathe or swallow. The examiner, with the ear near the patient's neck, can readily hear the splash of the fluid in the sac. The dry creak or rattle heard and felt while shaking the larynx of thin or aged people must be differentiated from the splash.

Butler Building.

IMPROVISATION OF A ROLLER BANDAGE
FROM A SQUARE OR HANDKER-
CHIEF BANDAGE

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In emergency cases in which a dressing or a splint is required it sometimes happens that a square or handkerchief bandage does not serve the purpose nearly as well as a roller bandage. The method here described

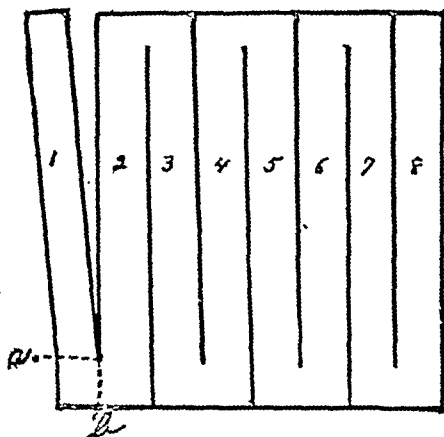


Fig. 1. Method of tearing cloth so as to improvise a roller bandage from a square of cloth.

is one by which a roller bandage may be made from a handkerchief very quickly and easily. It might seem that the improvised bandage would be too clumsy and weak; but if it is applied firmly and neatly it will be

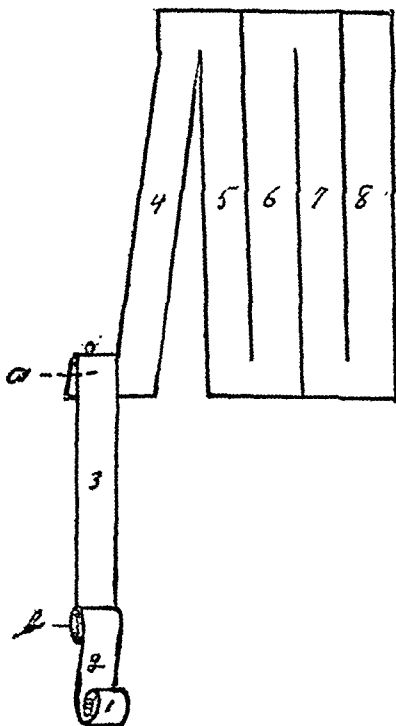


Fig. 2. Method of folding strips of cloth before being rolled.

found to hold quite as snugly as a regular roller bandage.

The cloth is first torn or cut as shown by the heavy lines in Figure 1. The first strip is then folded directly

backward or downward, as far as to the point *a* (Fig. 1) where it is joined to the second strip, as shown at *a* (Fig. 2); now the first strip (1) is folded on its longitudinal axis along the line *b* (Fig. 1), so that the first and second strips are in the same straight line as at *b* (Fig. 2). This process is repeated for all the strips, the folding taking place at alternate ends of the square. It makes no particular difference which way each strip is folded to bring it into line with the next one.

The bandage is then rolled and applied like any roller bandage. The strength and neatness of the bandage can be added to a little if it is pinned, before being rolled, at the places where the folds occur; but it works very satisfactorily without this added precaution.

This method can be used with a piece of cloth of any length or width. The bandage, of course, can be improvised out of other shapes than the square. Also the width of the completed roller can be made anything that is desired simply by varying the width of the original strips cut or torn in the square used.

3700 Brooklyn Avenue.

PARTIAL GANGRENE OF THE LEFT INDEX-
FINGERCAUSED BY THE SYMBIOSIS OF THE FUSIFORM BACILLUS
AND THE SPIROCHLETA DENTICOLAJ. F. HULTGEN, M.D.
CHICAGO

L. E., aged 7, was brought to consultation by her relatives August 6, 1910, on account an ill-smelling but fairly painless affection of her left hand, which had existed for a week but had become worse the last two days. On examination I found the nail of the left index-finger hanging to its bed by only a few shreds, covering a necrotic area which was surrounded by discolored, pultaceous, and extremely fetid tissue-remnants. The upper half of the distal phalanx of the left index-finger was destroyed, but the splacelus was limited at the distal phalangeal joint by slightly irritated, reddish, and moderately swollen tissues. There was similar, but only slight, perionyxis of the left thumb; no systemic disturbance, slight left axillary adenitis; several carious teeth; gums not very healthy; throat negative. The patient was well developed, and evidently in good health.

Microscopically, smears from the affected finger-tips showed a pure culture of the peculiar, symbiosis of two germs, the *Bacillus fusiformis* of H. Vincent (1896) and the *Spirocheta denticola* of W. D. Miller (1892). Preparations from the carious teeth showed the same organisms. The girl is in the habit of biting her fingers, and the etiologic connection between her teeth and the gangrenous affection of the left finger nail-beds is quite plain.

This is, I believe, the first case on record of a gangrenous perionychia due to this symbiosis. It must be remembered that these parasites are also the specific pathogenic agents of the following affections: ulcers-membranous angina (Plaut and Vincent), ulcerative stomatitis (Bergerson, Bernheim and Poposil), pyorrhea alveolaris or Rigg's disease, of many cases of noma, of hospital gangrene (Vincent), of tropical phagedenic ulcer (Vincent), of balano-posthitis (Bataille and Berdal) the so-called "fourth venereal disease" of F. G. Harris and B. C. Corbus. These germs live as facultative saprophytes in the mouth of normal individuals, and thence are inoculated into various parts of the body, internally as well as externally, attaining there pathogenic virulence under conditions as yet unknown to us.

304 Ashland Avenue.

Therapeutics

HEMORRHAGE FROM GASTRIC ULCER

Before instituting treatment for this very disturbing condition the physician should remember that statistics show that fatal hemorrhage from ulcer of the stomach is rare, probably not far from 1 per cent. of patients with this trouble dying during hemorrhage. Frequent occurrence of hemorrhages, of course, will soon cause anemia and perhaps lead to very serious loss of nutrition. Long before this condition occurs a surgical cure should have been instituted.

The object of this editorial is to call attention to a discussion of the subject by Dr. J. Kaufmann, of New York (*American Journal of the Medical Sciences*, June, 1910). He very sensibly states, in the first place, that gastric hemorrhage from this cause is rarely fatal; in the next place that an operation performed while the hemorrhage is going on would be extremely unsatisfactory: Either it is not necessary and the hemorrhage has ceased, or the patient is so exsanguinated as to make an anesthetic of any kind unjustifiable, and in the third place, it is difficult at the best, and more especially when there is blood in the stomach, to determine where the ulcer is located. The bleeding stops naturally from two causes; either from vaso-constriction of the bleeding vessel or vessels, or from the formation of a thrombus at the mouth of the bleeding vessel. Anything, then, that would increase the power and force of the general circulation as cardiac tonics, saline transfusions and circulatory stimulants would seem to be, and generally is, contraindicated. It has been repeatedly urged in article after article that cardiac tonics and vasoconstrictors are not indicated when the bleeding point cannot be reached and the hemorrhage locally stopped. In other words, when there is internal hemorrhage, whether somewhere in the abdomen, in the lungs, or in the brain, anything like digitalis or ergot is contraindicated, and when the bleeding stops after such medication it is a matter of sequence and not on account of the drug action. It is perfectly true that venous oozing and venous hemorrhage, sometimes bleeding from the nostrils, bloody expectoration from the lungs, when an insufficient heart is the cause, may be very well stopped by a cardiac tonic like digitalis, but generally when we discuss hemorrhage we mean arterial hemorrhage or an actual erosion of a vessel.

Therefore, anything that depresses the circulation unless the bleeding is sufficient to cause lowered arterial pressure and actual syncope, would be of advantage. It would be a brave man who would do venesection to stop a gastric hemorrhage, but as a matter of fact such treatment would often save the patient blood.

Kaufmann states that he has seen Esmarch bandages placed on the limbs, thus removing this blood from the body circulation, aid in causing the cessation of the hemorrhage.

As to local treatment aimed at stopping the hemorrhage, we can but agree with Kaufmann when he states that styptics and most local hemostatics such as acetate of lead, perchlorid of iron, oil of turpentine, and even tannic acid are as likely to cause nausea and vomiting as to stop the hemorrhage. As above stated, ergot should not be given at all, either by the stomach or hypodermatically. The vasoconstriction which adrenalin locally causes is followed by a reaction dilatation. This Kauf-

mann thinks may eventually cause a renewal of the hemorrhage. However, by the time of the vasodilatation a thrombus may have become firmly fixed in the bleeding vessel. Gelatin given by the mouth or in any other way is unsatisfactory. Calcium chlorid can do good only after absorption by rendering the blood a little more coagulable, hence it is a useful medicament only in repeated hemorrhages.

Kaufmann speaks of the serum treatment of hemophilia. We cannot see how this can be of any value in perforation of a vessel in the stomach, unless the patient is a hemophilic.

He finds the most satisfactory method of treating gastric hemorrhage is at first to do gentle gastric lavage. He has done this gastric washing so many times with satisfaction that he is not afraid of causing more hemorrhage. He does not believe it can ever cause perforation, unless the stomach is over-distended by very large quantities of water. In fact, if perforation was about to take place, he is not sure but that gastric lavage might save the patient's life by cleaning the stomach before the perforation. In other words, an ulcer that was not ready to perforate would not be perforated by lavage. If in his opinion the hemorrhage had ceased he would not do lavage, but if there was more or less constant bleeding he would do it, and the removal of a possibly insufficient thrombus from the bleeding part would only enhance a better contraction of the blood vessels and prevent a second or repeated serious hemorrhages.

The tube is inserted, (the patient lying down) and pushed just far enough to secure siphonage. The quantity of water used at a washing should be about 300 c.c. This cleansing of the stomach from what may have been there before the hemorrhage and from digesting and decomposing blood is of marked advantage in preventing vomiting and distress and causing the stomach to be at complete rest. In fact, these masses of clotting, disintegrating blood may cause gas and stomach distention and really actually cause another hemorrhage. Kaufmann also finds that a bleeding stomach may suddenly become dilated which would leave blood and perhaps food in the pendent portion, and this alone should be another cause for lavage.

Certainly after the lavage, and often before if it seems that the hemorrhage is about to stop, large doses of "crystalline bismuth subnitrate" should be administered. The crystalline form supposedly sticks more pertinaciously to the surface of the ulcer and allows the blood to agglutinate to the bismuth mass. Bismuth is not sufficiently astringent to contract the blood vessels to stop hemorrhage, but does aid in the coagulation of the blood and at the same time is soothing to the stomach, the exact opposite of the more active astringents.

For the subsequent treatment of gastric ulcer see *THE JOURNAL* of July 16, 1910, page 219.

It is interesting to note that Kaufmann believes that, paradoxical as it may sound, ulcers that have some time or other caused profuse hemorrhage are those that are the most readily cured.

APPENDICOSTOMY

This surgical procedure in order to better medicate the colon has passed the stage of experiment and is a resource for cure that must be considered in protracted colitis. The development of the various specialities has given increased importance to local treatment. It is

of course true that so-called general or constitutional treatment stands in little danger of being entirely abandoned at any early date. It is also unquestionably true that some specialists in their enthusiasm over operative and local treatment have many times neglected general treatment to the disadvantage of their patients. But one who concentrates his study on a particular part or organ of the body naturally becomes more and more eager to get directly at the seat of the trouble, to examine it with direct vision, to manipulate it with the fingers, and to apply remedies directly to the lesion or to treat it instrumentally or operatively.

The small intestine and the colon long resisted such direct attacks for diagnosis and treatment. Colonic irrigation is a not very ancient attempt to apply local treatment to the large intestine, while exploratory laparotomy greatly broadened our opportunities for diagnostic investigation of the small intestine.

Mayo Robson, in 1893, reported a case of colitis in which a cure had been effected by means of an artificial anus in the colon.

In 1898, Dr. Francis W. Murray, of New York, treated a case of amebic dysentery of two years standing by performing a right inguinal colostomy and subsequently irrigating the colon with antiseptic solutions. The patient left the hospital before he was entirely cured, but was seen six months after, when his condition was found to be very satisfactory. He had gained in weight, was able to resume his work as a tailor, and had an average of two or three movements a day, generally formed, sometimes loose, and generally containing mucus.

By this operation two important indications of treatment were met. First, securing complete rest of the affected part by diverting the feces from the colon, and second, irrigations of the colon with solutions of quinin or nitrate of silver.

Further observation demonstrated that the latter indication was the more important and that the former might be disregarded.

Bolton, in 1901, proposed to make an artificial anus in the cecum with a finger-like projection of the tissue into the lumen of the cecum which should act like a valve and prevent the escape of the intestinal contents.

In 1902, Dr. Robert F. Weir, of New York, having commenced to do Bolton's operation in a case of ulcerative colitis, saw the appendix appear in the wound and decided to utilize it in making the desired fistula, which he did by suturing the appendix in the wound, removing its tip, and through its lumen injecting a solution of nitrate of silver.

Since then this operation has been done by many surgeons in the treatment of a variety of conditions affecting the intestines.

Dr. W. B. Russ, of San Antonio, Texas, has recently published (*Texas State Journal of Medicine*, August, 1909) a comprehensive review of this subject, describing the evolution and the various modifications of the operations and enumerating the various diseases and conditions in which it has proved useful.

The disease in which appendicostomy has its field of greatest usefulness is amebic dysentery. J. M. Holt, of the Public Health and Marine-Hospital Service, has expressed the opinion that this disease is much more common in the United States than has been commonly supposed, and that microscopic examination of the

stools will often demonstrate that a "case of intractable diarrhea" is really amebic dysentery. These cases often resist indefinitely all forms of medical treatment.

At first advised only in chronic cases, some surgeons now advise operation in acute cases which do not soon yield to medical treatment. Many remarkable results following operation have been reported by surgeons of widely separated localities. Various solutions have been used for irrigating the bowel. Some excellent results have been reported from simple water; commencing with water at the temperature of the body and using water of lower temperature at each irrigation until ice cold water is used.

Most surgeons have used solutions of quinin 1 to 5,000 to 1 to 2,000, or of nitrate of silver 1 to 1,000 to 1 to 250. The fistula should not be allowed to close until there is no question of the complete recovery of the patient.

In mucous colitis irrigations with nitrate of silver solutions have proved very beneficial. In tubercular and syphilitic ulceration of the colon, irrigations with nitrate of silver solutions and ichthyol solutions, in connection with appropriate general treatment, have caused great improvement and in some instances have effected a cure. Gant, of New York, after a large experience says, "I have no more hesitation in advising appendicostomy and cecostomy for the relief of chronic diarrhea than I have for recommending appendectomy for appendicitis."

Appendicostomy with irrigation has also been recommended in septic peritonitis, in connection with drainage through tubes passed deeply into Douglas' cul-de-sac; in pernicious anemia in which it assists in removing from or diminishing the number of the anaerobic bacteria in the colon; in chronic constipation with headache, insomnia, and mental depression; and in the ileocolitis of children, which is not promptly controlled by dietetic and medicinal treatment.

It is becoming realized of late that in some instances of gastrointestinal irritation in which the symptoms have been attributed to appendicitis, and an appendectomy has been performed, the operation has not effected a cure, but the symptoms have persisted. In such cases there is considerable reason to believe that appendicostomy with irrigation of the colon will relieve the symptoms much more completely than the removal of the appendix and the closure of the abdomen.

Other conditions in which this operation has already proved, or seems likely to prove, beneficial are ileocecal intussusception, volvulus in which the cecum is involved, autointoxication, enteric or typhoid fever; also to prevent gaseous distention of the ileum, and to relieve dangerous post-operative conditions, in which irrigation through the appendix with warm saline solution will prevent or relieve shock, avoid distention, and assist elimination.

In some cases where irrigation of the ileum as well as of the colon is desirable cecostomy may be preferable to appendicostomy.

In rare instances this up and down or proximal and distal irrigation has been accomplished by means of an appendicoenterostomy, the tip of the appendix being opened and fastened into the ileum at its lower extremity. The loop of the appendix being brought into the abdominal wound, and after it had become united to the surrounding tissues being opened, irrigation may be readily performed in both directions.

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one year after year, nevertheless each year the resort to lawlessness continued and the maiming, the killing, the burning to death of little children and the torturing by lockjaw went merrily on. Besides stating the awful toll of life and limb from this annual carousal, *THE JOURNAL* also pointed out that the responsibility clearly rested with city governments. As the constant dropping of water wears away stone, so this annual presentation of the facts began to have an effect. At first a few public-spirited newspapers—notably the *Chicago Tribune*, which had made a news feature of the list of accidents even before *THE JOURNAL* began the collection of more complete data—published the facts, then newspapers generally took up the cry and finally numerous magazines and periodicals, so that the demands for restriction of the sale and use of fireworks became too insistent to be disregarded. Several cities like Toledo, Chicago, New York and Boston employed restrictive measures whereby the casualties were greatly reduced, while other cities like Baltimore, Washington, Cleveland and Trenton passed prohibitory ordinances with the result that deaths and injuries were entirely prevented or were reduced almost to the minimum.

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The commemoration of the Fourth of July is the nation's greatest opportunity for preaching the gospel of national and civic righteousness and for pointing the attention of hundreds of thousands of children to the characters which have made and developed this nation.

To *THE JOURNAL* it seems as though this is but the beginning of a mighty movement, not only to do away with the wanton destruction of life and limb by the use of fireworks, but to make of our national holiday a day of national upbuilding, a day for calling attention to the important incidents in American history; in fact, a day for the development of a genuine patriotism.

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The small intestine and the colon long resisted such direct attacks for diagnosis and treatment. Colonic irrigation is a not very ancient attempt to apply local treatment to the large intestine, while exploratory laparotomy greatly broadened our opportunities for diagnostic investigation of the small intestine.

Mayo Robson, in 1893, reported a case of colitis in which a cure had been effected by means of an artificial anus in the colon.

In 1898, Dr. Francis W. Murray, of New York, treated a case of amebic dysentery of two years standing by performing a right inguinal colostomy and subsequently irrigating the colon with antiseptic solutions. The patient left the hospital before he was entirely cured, but was seen six months after, when his condition was found to be very satisfactory. He had gained in weight, was able to resume his work as a tailor, and had an average of two or three movements a day, generally formed, sometimes loose, and generally containing mucus.

By this operation two important indications of treatment were met. First, securing complete rest of the affected part by diverting the feces from the colon, and second, irrigations of the colon with solutions of quinin or nitrate of silver.

Further observation demonstrates that in the outer dication of the vagina, and thus prevents the escape of deposited semen. The gland has been found in rats, guinea-pigs, mice and probably in hedgehogs, but not in human beings, rabbits and bullocks. It is further thought not to be present in the *Carnivora*, most of which have no seminal vesicles. In human beings the existence of the gland is suggested by the presence of coagulated particles in the semen and it may be the purpose of such coagula to prevent escape of spermatozoa from the vagina when the female is in the upright position.

stools will often demonstrate that a "case of intractable diarrhea" is really amebic dysentery. These cases often resist indefinitely all forms of medical treatment.

At first advised only in chronic cases, some surgeons now advise operation in acute cases which do not soon yield to medical treatment. Many remarkable results following operation have been reported by surgeons of widely separated localities. Various solutions have been used for irrigating the bowel. Some excellent results have been reported from simple water; commencing with water at the temperature of the body and using water of lower temperature at each irrigation until ice cold water is used.

Most surgeons have used solutions of quinin 1 to 5,000 to 1 to 2,000, or of nitrate of silver 1 to 1,000 to 1 to 250. The fistula should not be allowed to close until there is no question of the complete recovery of the patient.

In mucous colitis irrigations with nitrate of silver solutions have proved very beneficial. In tubercular and syphilitic ulceration of the colon, irrigations with nitrate of silver solutions and ichthyol solutions, in connection with appropriate general treatment, have caused great improvement and in some instances have effected a cure. Gant, of New York, after a large experience says, "I have no more hesitation in advising appendicostomy and cecostomy for the relief of chronic diarrhea than I have for recommending appendectomy for appendicitis."

Appendicostomy with irrigation has also been recommended in septic peritonitis, in connection with drainage through tubes passed deeply into Douglas' cul-de-sac; in pernicious anemia in which it assists in removing from or diminishing the number of the anaerobic bacteria in the colon; in chronic constipation with headache, insomnia, and mental depression; and in the ileocolitis of children, which is not confidently controlled by Anderson says that the only reason for not using such serums would be that a larger amount would have to be used to allow for the decrease in potency; but that old serums, unit for unit, are just as potent as fresh serums and would be perhaps less apt to cause severe reactions than fresh serums. He found that when diphtheria antitoxin was dried and kept in the dark at 40 F. it retained its potency practically unimpaired for five and one-half years. He suggests that such a dried antitoxin might be of value for use on long voyages and in the tropics.

INFLUENCE OF AGE AND TEMPERATURE ON THE POTENCY OF DIPHTHERIA ANTITOXIN

Many physicians, having occasion to use diphtheria antitoxin, have found that the return date on the package to be used had been reached or passed. This raised a doubt in their minds as to whether they should use this or obtain a newer package. Until recently there was little information on the question of the influence of age and temperature on the potency of diphtheria antitoxin and considering the importance of the subject it is surprising how little attention it has

1. Walker, G.: Bull. Johns Hopkins Hosp., June 10, 1910, p. 182.

Current Comment

POLIOMYELITIS

Reports indicate that poliomyelitis or infantile paralysis is quite prevalent in an epidemic form in many parts of the country. In some cases the true nature of the disease does not seem to have been appreciated until a considerable number of cases had occurred. This fact emphasizes the importance of physicians being on the lookout for the earlier cases, so that the disease can be controlled before it becomes epidemic. The conception

1. Anderson, John F.: The Influence of Age and Temperature on the Potency of Antidiphtheric Serum and Antitoxin Globulin Jour. Infect. Dis., 1910, vii, 481.

of the disease has somewhat widened in consequence of recent investigations and experience. That it has the nature of a general infection is evident from the manner of onset in many instances. Symptoms referable to the general system or to the digestive tract are apt to precede those which indicate the seat of the principal lesions in the nervous system. The early symptoms may also indicate involvement of the cerebrum so that the incautious practitioner may be led to conclude that he is dealing with an acute local disease of the brain. The general character of the early symptoms and the known prevalence of the disease should lead the physician to suspect the occurrence of poliomyelitis in cases presenting obscure indications of general infection with involvement of the nervous system. While the mode of transmission is not yet worked out it is evident that the disease is contagious, although there seems to be marked differences in susceptibility. The isolation of actual or even suspected cases is therefore important. Such isolation should be especially strict as regards young children. Unfortunately no curative or immunizing serum has yet been perfected, but with the activity of present bacteriologic research we may hope for an improved method of diagnosis and a specific treatment in the near future.

CHOLERA AND SUPERSTITION

Reports from southern Russia indicate that cholera is especially prevalent, while in St. Petersburg, with 1,000 cases in the hospitals, the number is increasing daily. The Russian authorities are said to be unable to suppress the spread of the disease and, too often with fatalism, regard it as unavoidable. The educated classes are inert and indifferent, while the peasants are fiercely opposing the sanitary authorities in their efforts to prevent the spread of the disease, attributing it, as usual, to the officials and the doctors who are trying to suppress it. Bulletins issued by the Russian government August 19 show a total to date of 112,985 cases, with a death roll of 50,287. As these figures show only the reported cases and deaths, it is probable that the actual numbers are even greater. Ignorance, superstition and fanatical opposition to progress still go hand in hand with filth, preventable diseases and an unnecessarily high death rate.

ABOLISH THE BLANK CARTRIDGE PISTOL

Blank cartridge wounds in eight years have caused 860 cases of tetanus, or 81.5 per cent. of all tetanus cases from Fourth of July injuries. Furthermore blank cartridge wounds cause more deaths in the annual celebration of our Independence Day than all other factors combined. In eight years, 854 deaths have been caused by this one factor! Most of the victims were bright, active boys from 6 to 18 years of age, who were doomed to die the most awful death known to medical science—a death the agony of which is probably not paralleled even by the tortures of the Inquisition. If this annual sacrifice were really necessary, it would be far more merciful to pick out the hundred or more youths each year and deliberately shoot them. But this an

outrage is not necessary; it is entirely preventable, and the prevention rests with the authorities of cities, towns and villages. For eight years THE JOURNAL has heralded these facts to the world; they have been given even wider publicity by some of our public-spirited newspapers and periodicals, and now no one can plead ignorance of the awful facts. Nevertheless, the governing bodies of the majority of our cities still view with the blind eye of callous indifference the fatalities for which they are morally responsible. Some cities have, indeed, passed prohibitory ordinances, but have not enforced them vigorously. To permit the use of blank cartridges and blank cartridge pistols at any time is little less than criminal.

WILLIAM JAMES

The death of Prof. William James, the eminent psychologist and writer, removes a distinguished member of the medical profession, though the fact that he was a member of our profession may not be generally known. Dr. James graduated from Harvard Medical School in 1869 and from 1872 to 1880 he taught in that school, first anatomy and later physiology. It was but a short step from physiology to philosophy, which he commenced to teach in 1880; and a still shorter one to psychology, of which he became professor in 1889. He is best known as a psychologist, both in this country and abroad. He would have been prominent in his original profession, but his work in mental science has so put in the shade his earlier record that it has been almost forgotten that he was a physician and a medical teacher. There is hardly any modern philosopher who is more often quoted in medical works, more especially those treating of mental affections and the mental treatment of disease. By his death our country has lost one of its most brilliant and lucid thinkers and broadest-minded philosophic investigators. Incidentally, as an instance of heredity of talent, it is worth mentioning that he was a son of a talented clergyman, and his brother, Henry James, Jr., is the well-known psychologic novelist whose name is familiar to lovers of literature wherever the English language is spoken.

DOLLARS VERSUS LIVES

The recent hearing at Washington in the Indiana benzoate of soda case places the manufacturers involved in a somewhat equivocal position through the emphatic replies of Dr. Wiley to some of the questions put to him. In the course of the cross-examination, according to the press despatches, the following statements were made:

"These tests are immensely important to the business world and involve thousands of dollars in property and products," said the attorney for the manufacturers.

"I don't care a hang for the business world," Dr. Wiley replied, promptly, "what I care for is the health of the people."

"You consider that more important than the interests of those who have hundreds of thousands of dollars tied up in property and products?" asked the attorney.

"I most certainly do," replied Dr. Wiley, "where there are thousands of dollars involved, there are millions of lives hanging in the balance which these investigations affect. It is these which I consider and not the business which may be done by any corporation."

Friends of the national Food and Drugs Act and advocates of its proper enforcement are certainly under obligations to the attorneys for the manufacturers for giving Dr. Wiley an opportunity to make such a straightforward statement of his position. *THE JOURNAL* and the medical profession have insisted from the beginning that the campaign was one of dollars versus lives. It was not to be expected, however, that the issue would be so clearly defined by the manufacturers themselves.

VITAL STATISTICS A BUSINESS ASSET

The Mississippi Land Development Association desires to attract immigration to that state. In preparing literature, the committee wished to make positive statements concerning the comparative healthfulness of the state. When the association attempted to secure reliable data on this point, however, it was found that no records of any sort existed by which the mortality or morbidity of the state could be ascertained. This proved such a serious drawback that business men interested in real estate and land development have taken up the question as a business proposition and are inaugurating a movement for the passage of a vital statistics law in order that official records of the state's healthfulness may be obtained. This action in a southern state is particularly gratifying, as that section has for many years been without adequate vital statistics. Only by carefully compiled official records is it possible to overcome the popular impression, which was created by serious epidemics in past years, of the comparative unhealthfulness of that portion of the country. It is therefore important that southern states adopt and enforce adequate vital statistic laws in order that the mortality and morbidity of the population may be a matter of record and not of rumor or surmise. Increasing healthfulness consequent on the suppression of malaria, yellow fever and hookworm disease, will be one of the best business assets for the new south.

HOGS SAVED FROM CHOLERA; NO HELP FOR BABIES

Two items recently appeared in a southern newspaper which apparently have no relation and yet are extremely suggestive. Here is the first one:

HOG-CHOLERA ERADICATED.—A report comes from Jackson that hog-cholera has been entirely eradicated from the state. Only one case was reported, it is said, that one being near Natchez. The usual serum was prepared and administered with excellent effect, so that there is said to be not a single case in Mississippi at the present time. The live-stock commission furnishes the serum for hog-cholera free of charge to veterinarians, and in the event of any outbreak, it can be quickly administered and the disease immediately suppressed.

The second was not considered of sufficient importance to call for a heading:

Without warning, little John McCabe, ten years old, son of Mrs. Elizabeth McCabe, was stricken by the hand of death this morning, and forty-five minutes later was no more. Death was due to spinal meningitis.

Careful examination of previous and subsequent issues of the newspaper fails to show that the state which furnished serum for hog-cholera made any effort to

secure a serum to save the life of little John McCabe, or to prevent the development of more cases of meningitis. A single case of hog-cholera is reported at once and the state live-stock commission takes immediate action. Yet no one knows how many children in Mississippi are suffering from spinal meningitis or even how many have died from that dread disease in the last year. The state which demands a report of every case of hog-cholera does not even record the death of a child from spinal meningitis or from any other cause. Another strange feature—no one objects to the state suppressing hog-cholera. In fact, the hogs of Mississippi have not even organized a National League of Medical Freedom.

FLORENCE NIGHTINGALE—HER WORK IS HER MONUMENT

The other day, Florence Nightingale was laid to rest in a quiet country churchyard in Hampshire. But for her known opposition to notoriety, the popular demand for her interment in Westminster Abbey would doubtless have been carried out. It was the personal request of the "Angel of the Crimea" that the strictest privacy should mark her funeral. It is proposed to erect a tablet in Westminster Abbey, as well as a public monument in London in memory of the woman who lessened the horrors of military hospitals and helped to ameliorate so far as possible the barbarities of war. This is right. But no monument can be erected that will adequately commemorate the services of this remarkable woman.

EIGHTH ANNUAL SUMMARY OF FOURTH OF JULY INJURIES

For the eighth consecutive year we are presenting statistics of injuries received during the celebration of the Fourth of July, with particular reference to tetanus resulting from these injuries. Every possible effort has been made to secure reliable data and all serious cases have been carefully investigated, so that, so far as the figures go, dependence may be placed on them. Lists of the patients treated at a large number of hospitals have been sent in and thousands of letters have been received from physicians in all parts of the country. In this way many cases have been reported which otherwise could not have been included in the statistics. Doubtless many injuries occurred which were not reported, but these must have been of very minor character. Thanks are extended to the health officers, the hospital superintendents, the physicians and others for the careful reports which have made these statistics practically complete and the figures reliable. The data are presented in the same manner as heretofore so that comparisons with the figures of previous years may be made.

FEWER CASES OF TETANUS

There were 72 cases of tetanus this year, the lowest number reported during the eight years *THE JOURNAL* has been gathering these statistics and less than half the number of last year, when 150 cases were reported.

of the disease has somewhat widened in consequence of recent investigations and experience. That it has the nature of a general infection is evident from the manner of onset in many instances. Symptoms referable to the general system or to the digestive tract are apt to precede those which indicate the seat of the principal lesions in the nervous system. The early symptoms may also indicate involvement of the cerebrum so that the incautious practitioner may be led to conclude that he is dealing with an acute local disease of the brain. The general character of the early symptoms and the known prevalence of the disease should lead the physician to suspect the occurrence of poliomyelitis in cases presenting obscure indications of general infection with involvement of the nervous system. While the mode of transmission is not yet worked out it is evident that the disease is contagious, although there seems to be marked differences in susceptibility. The isolation of actual or even suspected cases is therefore important. Such isolation should be especially strict as regards young children. Unfortunately no curative or immunizing serum has yet been perfected, but with the activity of present bacteriologic research we may hope for an improved method of diagnosis and a specific treatment in the near future.

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Reports from southern Russia indicate that cholera is especially prevalent, while in St. Petersburg, with 1,000 cases in the hospitals, the number is increasing daily. The Russian authorities are said to be unable to suppress the spread of the disease and, too often with fatalism, regard it as unavoidable. The same is true in this one case (occurring in Ogden, Utah), antitoxin was not given until the fourth day because no supply had been provided by the city and the physician was unable to secure it before that time. The value of tetanus antitoxin as a prophylactic appears so positive that very few cases have ever been reported in which active symptoms began after its administration. The list of tetanus cases is given in Table 1.

Tetanus occurred in 18 states, 7 less than last year and 2 less than 1908. Heretofore for five years Illinois has had the largest number, having had 20 cases last year, but this year that state reports 10 cases, falling below Michigan and Pennsylvania, each of which had 11. New Jersey had only 9 cases this year as compared with 19 last year, and Ohio reports only 4 cases this year, whereas there were 12 last year. Table 2 allows comparison of the number of cases in each state for the eight years.

Blank cartridges continue to be responsible for the great majority of tetanus cases, 64, or 88.9 per cent., this year being due to that cause as compared with 86.5 per cent. last year, 73.3 per cent. in 1908, 71 per cent. in 1907 and 60 per cent. in 1906. With the full knowledge of the awfulness of the deaths caused by blank cartridge wounds it is certainly inexcusable that the use of these instruments of torture is not absolutely prohibited. Five cases of tetanus this year were from gunshot wounds, 2 were due to injuries by fire-crackers and 1 was caused by a dynamite cap. None

outrage is not necessary; it is entirely preventable, and the prevention rests with the authorities of cities, towns and villages. For eight years THE JOURNAL has heralded these facts to the world; they have been given even wider publicity by some of our public-spirited newspapers and periodicals, and now no one can plead ignorance of the awful facts. Nevertheless, the governing bodies of the majority of our cities still view with the blind eye of callous indifference the fatalities for which they are morally responsible. Some cities have, indeed, passed prohibitory ordinances, but have not enforced them vigorously. To permit the use of blank cartridges and blank cartridge pistols at any time is little less than criminal.

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Chapman.....M.	10	Bl. etg.....Arm.....	10	..	D.
NEW JERSEY					
Bellis.....M.	11	Bl. etg.....Finger.....	10	..	D.
Dalje.....M.	14	Bl. etg.....Face.....	..	..	..
Gourley.....M.	12	Bl. etg.....Hand.....	(8)11	..	D.
Hoffman.....M.	12	Bl. etg.....Hand.....	..	..	D.
Karcher.....M.	11	Gunshot.....Hand.....	(6)9	7	D.
Kappes.....M.	17	Bl. etg.....Finger.....	(9)10	7	D.
Straug.....M.	11	Bl. etg.....Hand.....	..	..	D.
Van Gorden.....M.	14	Bl. etg.....Finger.....	(7)9	No	D.
Wilson.....M.	12	Bl. etg.....Finger.....	(7)8	7	D.
NEW YORK					
Anthony.....M.	9	Bl. etg.....Hand.....	6	..	D.
Cole.....M.	17	Bl. etg.....Hand.....	5	..	D.
Knapp.....M.	18	Bl. etg.....Thigh.....	(7)11	7	D.
Muckey.....M.	15	Bl. etg.....Arm.....	7	..	D.
Rafelyea.....M.	11	Bl. etg.....Hand.....	(6)8	7	D.
See.....M.	13	Bl. etg.....Hand.....	(8)16	9	D.
Taylor.....M.	Boy	Bl. etg.....Hand.....	(6)9	..	D.
OHIO					
Arendt.....M.	12	Bl. etg.....Thigh.....	(6)7	6	D.
Bumb.....M.	15	Bl. etg.....Hand.....	9	..	D.
Liebenderfer.....M.	14	Bl. etg.....Hand.....	7	..	D.
PENNSYLVANIA					
Adamski.....M.	21	Bl. etg.....Hand.....	(7)8	7	D.
Anezak.....M.	15	Bl. etg.....Finger.....	(5)7	6	D.
Bovitch.....M.	38	Bl. etg.....Arm.....	5	..	D.
Dunshock.....M.	10	Bl. etg.....Hand.....	14	..	D.
Fanell.....M.	11	Bl. etg.....Finger.....	(3)5	3	D.
Mullaney.....M.	12	Bl. etg.....Finger.....	(5)7	6	D.
Rosbaugh.....M.	11	Bl. etg.....Hand.....	(6)8	7	D.
Serbo.....M.	7	Bl. etg.....Hand.....	8	..	D.
Sutherland.....M.	16	Bl. etg.....Hand.....	(10)13	12	D.
Tenant.....M.	11	Bl. etg.....Hand.....	8	..	D.
Teri.....M.	7	Bl. etg.....Leg.....	8	..	D.
UTAH					
Clark.....M.	17	Bl. etg.....Hand.....	(8)9	4	D.
WASHINGTON					
Miller.....M.	13	Bl. etg.....Hand.....	10	..	D.
WISCONSIN					
Heinze.....M.	8	Bl. etg.....Hand.....	..	..	R.
Pizzo.....M.	12	Dyn. cap.....Hand.....	(7)5	7	D.
Sauve.....M.	11	Bl. etg.....Finger.....	(7)11	7	D.
OKLAHOMA					
Metler.....M.	9	Bl. etg.....Hand.....	8	..	L.

* Figures in parentheses show incubation period.

TABLE 7.—TOTAL DEATHS AND ACCIDENTS BY STATES DURING EIGHT YEARS

	1903	1904	1905	1906	1907	1908	1909	1910
Alabama	2	7	1	2	1	1	1	3
Arizona	1	4	4	5	2	5	3	4
Arkansas	1	3	4	4	5	1	1	4
California	100	138	142	96	121	136	89	63
Colorado	39	44	26	23	25	13	18	19
Connecticut	162	133	132	169	63	105	86	78
Delaware	1	5	14	8	16	12	13	8
Dist. Columbia	2	10	24	5	12	21	1	4
Florida	1	2	2	2	4	4	2	3
Georgia	4	4	3	3	4	4	2	5
Idaho	366	423	542	598	468	558	516	285
Illinois	160	211	217	230	255	164	167	167
Indiana	168	137	328	255	231	174	91	141
Iowa	63	88	56	61	64	72	86	50
Kansas	30	72	17	21	18	33	17	26
Kentucky	31	2	3	7	8	4	4	4
Louisiana	21	22	13	10	23	21	10	8
Maine	637	193	467	329	168	430	420	63
Maryland	144	137	288	193	163	203	177	143
Massachusetts	157	102	174	95	95	65	69	64
Michigan	147	84	218	325	299	375	352	112
Minnesota	5	17	40	3	6	11	9	10
Mississippi	46	63	43	47	53	46	42	36
Montana	1	2	2	1	4	1	1	1
Nebraska	37	23	9	29	13	13	23	10
Nevada	225	204	350	393	402	472	488	167
New Hampshire	522	549	566	681	752	617	897	327
New Jersey	10	8	29	11	8	13	4	13
New Mexico	443	327	329	490	375	543	323	166
New York	1	3	7	14	194	9	12	11
North Carolina	16	13	9	11	5	9	21	19
North Dakota	533	744	721	969	491	957	986	623
Ohio	64	30	11	21	39	39	42	19
Oklahoma	4	10	15	5	8	10	9	4
Oregon	4	1	5	6	4	5	4	10
Pennsylvania	2	2	4	11	7	11	4	2
Rhode Island	23	22	25	18	30	12	18	8
South Carolina	45	14	10	14	18	19	12	4
South Dakota	11	5	8	5	5	4	4	4
Tennessee	21	25	15	25	23	38	32	37
Texas	19	16	34	64	27	29	35	29
Utah	190	215	230	155	150	187	157	171
Vermont	1	2	8	3	1	1	1	4
Virginia	1	1	1	1	1	1	1	1
Washington	1	1	1	1	1	1	1	1
West Virginia	1	1	1	1	1	1	1	1
Wisconsin	1	1	1	1	1	1	1	1
Wyoming	1	1	1	1	1	1	1	1
Totals	4,449	4,169	5,176	5,466	4,413	5,623	5,307	2,923

stray bullets from the reckless use of firearms by others and 3 deaths resulted. Toy cannon caused 212 injuries including 3 killed, but this year caused no cases of tetanus.

TOTALS IN CHIEF CITIES

Table 8 shows the number reported killed and injured in our largest cities during each of the past three years. The population figures are from the United States Census Bureau's estimate for 1909. This table is of particular interest since by it the results of the adoption and enforcement of prohibitive or restrictive ordinances can be seen. Sometimes, however, although very small numbers of injuries are reported, more deaths resulted than in other cities having many more injuries. Pittsburg and New York City each reported six deaths, the largest number this year; Chicago and Philadelphia each report 4 deaths; Cincinnati and Milwaukee each report 3; and Wilkes-Barre, Pa., reports 2. Pittsburg had one more death than last year regardless of the fact that the number of injuries was reduced by half. Although Chicago had only half as many injuries as last year, nevertheless there were four deaths his year to none last year. New York had three deaths less than last year and only $\frac{1}{3}$ as many injuries were reported. For the first time in four years St. Louis and Boston report no deaths and the returns show greatly reduced casualties. Of non-fatal injuries this year, Philadelphia leads with 405, followed by New

TABLE 8.—NUMBER REPORTED KILLED AND INJURED IN THE LARGER CITIES

City.	Population Census Bureau, est. 1902.	1907		1908		1909		1910	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New York City.....	4,450,963	22	422	11	316	-	559	6	179
Chicago.....	2,224,491	16	151	12	202	118	4	63	405
Philadelphia.....	1,515,756	7	248	6	426	9	508	4	443
St. Louis.....	686,369	3	189	4	229	4	163	4	35
Boston.....	622,970	3	59	6	190	5	167	3	35
Baltimore.....	576,023	5	1	10	5	5	6	6	13
Pittsburg.....	553,123	10	83	30	5	48	6	26	9
Cleveland.....	506,938	3	63	12	93	4	1	1	17
San Francisco.....	450,000	11	12	12	1	9	1	9	13
Buffalo.....	396,535	18	3	11	33	1	13	1	17
Detroit.....	384,855	2	46	10	2	46	1	17	49
Cincinnati.....	351,212	2	89	1	112	3	86	3	49
Washington.....	343,003	12	21	21	78	3	112	3	112
Milwaukee.....	332,495	2	93	70	78	3	112	3	112
New Orleans.....	327,662	8	4	4	24	1	150	1	15
Minneapolis.....	309,378	13	10	1	24	1	20	1	13
Newark, N. J.....	308,669	1	129	2	81	1	150	1	15
Los Angeles.....	306,000	35	40	26	7	1	44	1	44
Seattle.....	265,000	1	3	11	3	10	7	9	9
Jersey City.....	253,711	31	5	34	1	14	1	44	9
Oakland.....	250,000	9	8	8	8	9	9	9	9
Indianapolis.....	241,826	1	31	1	14	1	35	1	24
Louisville.....	236,688	13	10	1	10	1	13	1	13
St. Paul.....	224,189	20	13	18	12	12	12	12	12
Providence, R. I.....	217,065	20	1	21	13	10	10	10	10
Rochester, N. Y.....	196,793	12	10	5	10	10	10	10	10
Kansas City, Mo.....	191,685	1	46	55	4	67	1	25	2
Toledo, Ohio.....	174,059	1	5	8	2	3	1	2	6
Denver, Colo.....	156,726	8	13	12	1	12	1	6	2
Columbus, Ohio.....	155,340	5	36	5	1	19	1	2	6
Memphis, Tenn.....	136,363	1	3	4	4	2	6	17	17
Worcester, Mass.....	135,906	1	6	2	20	1	42	1	17
Omaha, Neb.....	134,972	25	10	1	17	1	17	17	17
New Haven, Conn.....	127,827	2	15	15	15	15	15	15	15
Scranton, Pa.....	126,575	5	1	17	1	29	6	6	6
St. Joseph, Mo.....	125,504	1	23	1	41	1	24	11	11
Syracuse, N. Y.....	125,378	20	14	13	6	6	6	6	6
Tacoma, Wash.....	125,000	2	4	1	3	3	2	2	2
Portland, Ore.....	119,607	2	2	3	16	13	13	13	13
Paterson, N. J.....	116,615	1	29	2	31	1	45	1	14
Atlanta, Ga.....	111,825	1	4	3	1	45	1	14	5
Richmond, Va.....	109,461	11	14	4	2	2	2	2	2
Dayton, Ohio.....	108,668	11	14	4	2	2	2	2	2
Fall River, Mass.....	106,481	11	12	19	1	1	1	1	1
Nashville, Tenn.....	106,476	2	2	3	8	8	8	8	8
Grand Rapids, Mich.....	105,909	20	1	30	3	17	17	17	17
Hartford, Conn.....	103,803	18	18	11	14	14	14	14	14
Cambridge, Mass.....	101,572	17	17	17	17	17	17	17	17
Albany, N. Y.....	100,750	1	24	37	31	11	11	11	11
Bridgeport, Conn.....	99,913	1	27	21	4	4	4	4	4
Reading, Pa.....	97,231	17	13	17	1	3	3	3	3
Lowell, Mass.....	95,125	23	18	18	1	1	1	1	1
Camden, N. J.....	89,305	16	29	4	14	6	6	6	6
Wilmington, Del.....	88,980	1	14	13	3	9	6	6	6
Des Moines, Iowa.....	86,415	1	31	41	13	23	23	23	23
Kansas City, Kan.....	85,742	1	10	17	33	14	14	14	14
Trenton, N. J.....	84,180	38	1	17	1	58	1	58	1
New Bedford, Mass.....	83,893	3	3	3	3	3	3	3	3
Lynn, Mass.....	83,865	3	11	3	16	4	4	4	4
Springfield, Mass.....	82,724	21	1	36	1	9	1	2	2
Troy, N. Y.....	77,242	2	18	16	1	8	1	8	1
Lawrence, Mass.....	76,042	11	1	5	22	1	2	2	2
Somerville, Mass.....	75,375	13	9	2	10	3	3	3	3
Duluth, Minn.....	74,520	4	20	8	1	13	1	13	1
Schenectady, N. Y.....	73,037	4	20	8	1	13	1	13	1
Savannah, Ga.....	72,446	32	5	8	8	8	8	8	8
Yonkers, N. Y.....	72,200	32	5	8	8	8	8	8	8
Norfolk, Va.....	71,730	8	27	1	22	1	17	17	17
Peoria, Ill.....	70,383	1	1	24	7	4	4	4	4
Hoboken, N. J.....	70,351	18	10	5	1	1	1	1	1
Utica, N. Y.....	69,453	3	1	1	5	5	5	5	5
Manchester, N. H.....	68,561	43	72	37	15	15	15	15	15
Elizabeth, N. J.....	67,470	1	1	1	1	1	1	1	1
San Antonio, Tex.....	67,404	2	8	14	5	15	15	15	15
Waterbury, Conn.....	67,282	5	12	6	14	1	7	7	7
Evansville, Ind.....	66,948	15	3	33	1	15	2	9	9
Salt Lake City.....	64,538	1	3	1	1	1	1	1	1
Wilkes-Barre, Pa.....	64,323	1	3	33	1	15	2	9	9
Eric, Pa.....	63,652	1	1	1	1	1	1	1	1
Houston, Tex.....	63,625	23	1	71	22	3	3	3	3
Harrisburg, Pa.....	58,530	1	2	2	2	2	2	2	2
Portland, Me.....	57,675	1	2	2	2	2	2	2	2
Charleston, S. C.....	56,573	1	2	2	2	2	2	2	2
Totals.....		94	2,453	83	2,860	80	2,925	43	1,155
Totals elsewhere.....		70	1,791	80	2,600	135	2,156	68	1,337
Grand totals.....		164	4,249	163	5,460	215	5,081	131	2,792

TABLE C.—SUMMARY BY STATES OF JULY FOURTH CASUALTIES

States.	Deaths.			Injuries.							Total Persons Dead or Injured.	Causes of Tetanus Cases.		Causes of all Cases Aside from Tetanus Cases.				
	From Tetanus.	From Other Causes.	Total.	Loss of Sight.	Loss of One Eye.	Loss of Legs, Arms or Hands.	Loss of Fingers, One or More.	Other Injuries.	Total Non-Fatal Injuries.	Blank Cartridge.		All Other Causes.	Blank Cartridge.	Fire Crackers.	Cannon.	Firearms.	Powder and Fireworks.	
Alabama.....		1	1					2	2	3			1			2		
Arizona.....																		
Arkansas.....								4	4	4			1					
California.....	1	2	3			1	7	52	60	63		1	6	3		5	25	
Colorado.....		1	1				2	16	18	19				17	3		2	
Connecticut.....		1	1		1	1	7	63	77	78			26	16	13	9	14	
Delaware.....						1		7	8	8			2	6		1		
District of Columbia.....																		
Florida.....		1	1					3	3	4			1	1	1		1	
Georgia.....								5	5	5							5	
Idaho.....								3	3	3							1	
Illinois.....	10	4	14		4	1	15	251	271	285	8	2	53	105	18	15	84	
Indiana.....	5	3	8		2	1	9	147	159	167	3	1	13	87	10	12	39	
Iowa.....	1	3	4		1		3	133	137	141	1		8	64	9	6	53	
Kansas.....		2	2					48	48	50			9	12	11	1	17	
Kentucky.....		1	1					25	25	26			3	10	1		12	
Louisiana.....								4	4	4				2		2		
Maine.....								7	7	7			1	4			1	
Maryland.....	1		1				1	6	7	8	1		1	1	1	1	3	
Massachusetts.....		2	2		1		3	57	61	63			4	11	4	8	36	
Michigan.....	11	4	15		2	2	11	113	128	143	9	2	20	56	6	5	45	
Minnesota.....		1	1	1	4	1	1	56	63	61			2	25	9	5	23	
Mississippi.....																		
Missouri.....	2	1	3	1	1		3	104	109	112	2		25	48	6	4	27	
Montana.....	1		1					9	9	10	2		1	6			1	
Nebraska.....	1		1		1			34	35	36	1		3	7		6	19	
Nevada.....						1			1	1				1				
New Hampshire.....							1	9	10	10			3	3	1		3	
New Jersey.....	8	4	12	1		3	5	146	155	167	8	1	32	41	8	22	55	
New Mexico.....								3	3	3			2	1				
New York.....	7	9	16	1	7	5	9	289	311	327	7		63	80	34	45	98	
North Carolina.....								1	1	1								
North Dakota.....							2	11	13	13			1	8	1	1	2	
Ohio.....	3	5	8	1	3	1	7	116	158	166	3		31	67	9	12	44	
Oklahoma.....	1		1			1	1	8	10	11	1		2	6			2	
Oregon.....							1	18	19	19				10	3		6	
Pennsylvania.....	11	14	25	2	3	2	14	577	598	623	11		33	200	43	49	287	
Rhode Island.....								19	19	19			3	3	2	2	9	
South Carolina.....																		
South Dakota.....								4	4	4			2				2	
Tennessee.....						1		9	10	10			4	2	1	2	1	
Texas.....								2	2	2			1				1	
Utah.....	1	1	2					6	6	8	1		1	3		3		
Vermont.....						1		3	4	4			1	3				
Virginia.....																		
Washington.....	1		1			1	4	31	36	37	1		3	14	1	2	16	
West Virginia.....								20	20	20				17		2	1	
Wisconsin.....	2	4	6		3	2	7	153	165	171	2	1	24	83	16	6	39	
Wyoming.....							1	3	4	4				3		1		
1910 totals.....	67	64	131	7	33	26	114	2,612	2,792	2,923	64	8	386	1,050	212	229	974	
1909 totals.....	125	90	215	16	36	41	176	4,823	5,092	5,307	130	20	1,095	1,614	427	341	1,680	
1908 totals.....	55	108	163	11	93	57	184	5,115	5,460	5,623	58	18	816	1,793	399	481	2,053	
1907 totals.....	62	102	164	12	75	57	237	3,868	4,240	4,413	52	21	554	1,489	267	502	1,528	
1906 totals.....	75	83	158	22	72	56	227	4,931	5,308	5,466	54	35	925	1,650	408	532	1,822	
1905 totals.....	87	95	182	25	106	80	221	4,562	4,994	5,176	65	39	744	1,775	474	404	1,675	
1904 totals.....	91	92	183	19	61	61	208	3,637	3,986	4,169	74	25	831	1,268	508	406	1,057	
1903 totals.....	406	60	466	10	75	54	174	3,670	3,983	4,449	363	29	1,309	1,152	397	236	963	
Grand totals.....	968	694	1,662	122	551	432	1,541	33,218	35,861	37,526	860	195	6,600	11,831	3,092	3,131	11,757	

sachusetts this year had only about 1/7 of the injuries it had last year; Missouri, New Jersey and New York reduced their injuries to 1/3 and Illinois and Ohio had 1/2 of their last year's totals. Pennsylvania reduced its total to 2/3 of what it had last year. Of all the states having over 100 injured, only Indiana, Iowa and Wisconsin show larger totals than last year. Pennsylvania continues in the lead with 623 injuries, followed by New York with 327 and Illinois with 285. Note that last year the same three states had respectively 986, 897 and 546 injuries! Altogether there were 2,923 injuries this year, a little more than half of last year's record.

NON-FATAL INJURIES

There were 2,792 non-fatal injuries this year, a little more than half (55 per cent.) of the total reported last year. Only 7 persons were totally blinded this year, but 33 lost one eye each, 26 lost legs, arms or hands and 114

lost one or more fingers. The giant firecracker—which, by the way, has a much shorter fuse than the smaller varieties—holds the first place as a cause of mutilating wounds and is responsible for most of the losses of eyes, hands and fingers. In the awfulness of its destructiveness the giant firecracker is equaled in a few instances only by the explosion of bombs, or of home-made cannon. The fact that the wounds made by giant firecrackers are so lacerated is probably the reason they do not cause more lockjaw. Again, these cases are taken to the physician, while the supposedly insignificant wounds made by blank cartridges are not. This year 1,050 injuries including 2 deaths and 2 cases of lockjaw were due to the giant firecracker.

Firearms caused 229 accidents this year including 19 killed and 5 cases of lockjaw. The percentage of deaths from this cause was 10.2. Of the total number thus injured, 78 were struck by

\$10,000.—The Harbor Emergency Hospital, San Francisco, has moved from its old location on the bulkhead at the foot of Mission Street to the new quarters on Clay Street.—Ground for the new Kings County Hospital at Hanford was broken August 11.

Personal.—Dr. H. B. Graham, who recently returned to Berkeley from Austria, has been appointed assistant professor of hygiene in the University of California.—Dr. John T. Jones, Grass Valley, who has been in Europe for a year and a half under treatment for injuries sustained while swimming at Coronado Beach, has sailed from Liverpool for America.—Dr. Fred P. Clark, superintendent of the Stockton State Hospital, has been reelected for another term.—Dr. Frederick P. Gay, of Harvard Medical School, has been appointed head of the department of pathology of the University of California, vice Dr. Alonzo E. Taylor, resigned.—Dr. Thomas W. Huntington, San Francisco, has been appointed chief surgeon of the Western Pacific Railroad.

COLORADO

Personal.—Dr. Elmer A. Elder has succeeded Dr. Joseph E. Peairs, resigned, as city physician of Pueblo.—Dr. A. M. Foster, formerly head of the Eudowood Sanatorium, near Towson, Md., has assumed active charge of Cragmore Sanatorium, near Colorado Springs.

To Better the Health of Pueblo.—A committee has been appointed by the Commerce Club of Pueblo with the object of putting the city on a better sanitary basis. The committee is composed of Drs. Franklin E. Wallace, William H. T. Baker, David W. Collins, Crum Epler and Luke McLean, and plans have already been laid for the inspection of dairies, grocery stores, meat shops and other places where it is likely that unsanitary conditions may be found.

GEORGIA

Higher Entrance Requirements.—It is announced that beginning with the session of 1911-12 the Atlanta School of Medicine will require for admission a four-year high-school education, or the actual equivalent as determined by examination. This requirement is to consist of 14 units as defined by the College Entrance Examining Board. Examinations will be given only by some designated educational authority not interested in the college.

IDAHO

Donates Site for Home.—Dr. Mary E. Johnston, Boise, has donated a block of land at Roosevelt Heights, Boise, as the initial step in the establishment of a home for the old people of the state.

Personal.—At a recent meeting of the State Board of Health Dr. Ralph Falk, Boise, was elected secretary, vice Dr. Jesse L. Conant, Weiser, deceased.—Dr. Glenn E. Shawhan, Boise, has been appointed physician of Ada county, vice Dr. Ralph Falk, resigned.

Infantile Paralysis Epidemic.—The secretary of the State Board of Health has sent out circular letters of inquiry to physicians throughout Idaho asking statistics regarding the alleged prevalence of anterior poliomyelitis in the state. Of the 36 cases reported in Idaho, 7 are said to have occurred in Cottonwood.

ILLINOIS

Personal.—Lieutenant-Colonel Henry Richings, Rockford, surgeon of the Third Brigade, Ill. N. G., has been placed on the retired list.—Dr. Anthony G. Wittman, Blue Island, has passed the civil service examination for assistant physician in the state charitable institutions.

Chicago

Personal.—Dr. William J. Butler has returned from Europe.—Dr. Thomas M. Leahy has passed the state civil service examination for assistant physician in the state charitable institutions.

Sputum Examination.—Improved methods of sputum examination have been adopted recently in the Municipal Laboratory. Sputum shakers of the Boston Board of Health type have been installed and the use of alkaline sodium hypochlorite as digestant has been introduced, resulting in increase in the delicacy of the test and augmentation of the capacity of the laboratory. During the four months prior to the installation, tubercular bacilli were found in 17.5 per cent. of the 1,017 specimens examined, and in the three months following the installation, 27.1 per cent. of tubercular bacilli were found in 506 specimens of sputum.

INDIANA

Transferring Insane Patients.—During the last week five trains transferred 500 insane patients from the Central Insane Hospital, Indianapolis, to the Southeastern Insane Hospital, Madison. This institution comprises a group of thirty-two buildings, overlooking the Ohio River, recently constructed at a cost of \$1,500,000. Dr. Edward P. Busse, Evansville, has been selected as superintendent.

Bureau of Health Speakers.—The State Board of Health is about to establish a bureau of speakers on health. These speakers will accompany the tuberculosis exhibits which are to be sent to schoolhouses, and will speak to the school-children on how to live and how to prevent disease. The lectures will be illustrated and photographs of correct living and sleeping apartments and other methods of sanitation will be shown.

Fort Benjamin Harrison.—During September, 15,000 soldiers of the army militia from Illinois, Wisconsin, Michigan, Ohio, Kentucky and Indiana will assemble at Fort Benjamin Harrison, near Indianapolis, for a tour of inspection and duty. The chief medical officer is Colonel L. Merwin Maus, Medical Corps, U. S. Army, chief surgeon of the Department of the Lakes, Chicago, who has announced that prevention of disease by relentless warfare on the housefly will be the chief work of his department.

Health Car Caravan.—A health car caravan is being organized in Indianapolis by the father of a tuberculous child. The caravans will contain twelve vans and two automobiles with accommodation for from forty to fifty patients suffering from tuberculosis. Nurses, cooks, and a physician are to accompany the caravan. The maximum of out-of-door life will be led. For amusement, fishing, hunting, sightseeing and visiting famous battlefields have been planned. The route includes Kentucky, Tennessee, Virginia, the Carolinas, Georgia, Alabama and Mississippi. The caravan will return to Indianapolis in the spring of 1911.

Violation of Pure Food Law.—During the present term of the Federal Court for the District of Indiana, ten individuals or firms are said to have been fined for violation of the pure food law. Among these were The Wells Medicine Company, Lafayette, for selling "Wells' Dime Headache Cure;" G. R. Summers, South Bend, for misbranding "Mrs. Summers' Harmless Headache Remedy;" "The Sure Pop Company," Terre Haute, for misbranding in the label that "Sure Pop cures headache and neuralgia." The case against the Evansville Bottling works is still pending. This company is said to use cocaine in "Shelburn's Cola." The common violations of the law in the state are misbranding of the weights of cheese, adulteration of vinegar, cottonseed meal, and whisky, and false labeling in shipments of apricots.

IOWA

Personal.—Dr. Harry J. James, formerly superintendent of the State Sanatorium, Oakdale, has been appointed superintendent of the South Dakota State Sanatorium.—Dr. Herbert S. Miner, superintendent of the State Hospital for Inebriates, Knoxville, has resigned, to take effect in November.—Dr. Charles W. Carr, Denison, has returned from Europe.

Woman's Infirmary Opened.—The new Woman's Infirmary in connection with the State Hospital for the Insane, Mount Pleasant, was recently opened to receive patients. The building has been erected at a cost of \$67,500 and has a thoroughly modern equipment, including hydrotherapeutic department, installed at a cost of \$3,500. The building will accommodate 70 patients.

KENTUCKY

Attempted Assassination.—Dr. James U. Ridley, Robard, was shot by a negro, August 24. No cause has been advanced for the attempted assassination.

Personal.—Dr. Henry E. Tuley and family have returned from a ten weeks' trip abroad.—During the illness of health officer Dr. William V. Neel, of Henderson, his duties as health officer have been assumed by Dr. J. W. Stone, president of the board.

Tuberculin Test.—The State Board of Health will probably hold an early meeting to amend its ruling as to the use of the tuberculin test in all dairy cattle furnishing milk for sale in Kentucky, to include cows furnishing milk for manufacture of butter. The board has received an opinion from its attorney

in which it is stated that the board has full power to supplement its order of a year ago to include milk used for all purposes.

Personal.—Dr. Ernest B. Bradley, city bacteriologist of Lexington has been elected health officer of Fayette county. —Dr. Henry B. Ritter has retired from the Medical Department of the University of Louisville and has discontinued the practice of obstetrics. —Dr. Thomas C. Evans has abandoned the practice of his specialty, the diseases of the eye, ear, nose and throat, and is devoting his entire attention to his work as dean of the Medical Department of the University of Louisville.

Merger of Colleges.—The Southwestern Homeopathic Medical Hospital and College of Louisville has been merged with the Hahnemann Medical College of Chicago. The Southwestern Homeopathic College was established in 1892 and the present faculty, the majority of whom are graduates of the institution, will make occasional trips to Chicago to lecture in the Hahnemann College. The college has not been self-supporting recently and its annual deficit has been made up by friends and patrons of the institution. The intern staff at the City Hospital will now be made up exclusively of regular graduates of the University of Louisville Medical Department. Every fifth patient admitted to the institution heretofore has been under the homeopathic service.

MARYLAND

Baltimore

Osler in Baltimore.—Dr. William Osler, regius professor of medicine in Oxford University, England, visited Baltimore August 21, as the guest of Dr. Thomas B. Futeher. He returns to England, September 6.

Personal.—Dr. H. Quigg Fletcher, of Johns Hopkins Hospital, has been appointed house physician at the Union Protestant Infirmary. —Dr. G. Milton Linthicum, who has been ill in the Maryland General Hospital for several weeks, has gone to Atlantic City to recuperate.

Medical Illustrator Dies.—Mr. August Horn, for many years connected with the gynecologic department of Johns Hopkins Hospital as an illustrator of medical subjects, died in Nauheim, Germany, August 19, aged 41. His excellent work has appeared in THE JOURNAL many times.

MICHIGAN

School Medical Inspectors in Saginaw.—The committee of the board of education which has charge of medical inspection of public schools has decided that four physicians shall be employed, each to have three schools under his jurisdiction which must be visited at least once a week.

Personal.—Dr. Frank W. Smithies, Ann Arbor, has been offered a professorship and the directorship of University Hospital in the Iowa State University. —Dr. G. Carl Huber, Ann Arbor, has been made research professor of embryology in the Wistar Institute, Philadelphia. —Dr. Robert M. Gubbins, Ceresco, fell from the roof of his store, August 23, dislocating a wrist and fracturing the left ulna.

MINNESOTA

Personal.—Dr. Nathan C. Bulkley, formerly of Superior, Wis., has been appointed health commissioner and school inspector of Eveleth. —Dr. Clyde E. Prudden, Duluth, has been placed in charge of the school inspection work of Hibbing.

The New Duluth Dispensary.—Dr. William M. Hart, secretary of the St. Louis County Sanatorium, has been placed in charge of the work connected with the new free dispensary. Many patients suffering from tuberculosis have already appeared for examination and treatment.

MISSISSIPPI

Bulletin on Tuberculosis.—The Mississippi State Board of Health has issued a bulletin relative to the war being waged on tuberculosis, in which it gives information regarding the causation of the disease and urges the cooperation of all citizens in preventing its spread.

Personal.—Dr. Francis M. Sheppard, Richton, has been appointed railroad commissioner of Mississippi. —Dr. Harold B. Wood, of the University of Pennsylvania, has been appointed bacteriologist and director of the laboratory of the Mississippi State Board of Health. —Drs. Walter H. Rowan, Wiggins, and James B. Bullitt, University, have been appointed field agents and special inspectors of hookworm and tuberculosis.

—Dr. Roland W. Hall, Clinton, has been appointed by the State Board of Health local sanitary agent for the investigation and eradication of hookworm.

NEW YORK

Off for Europe.—Dr. and Mrs. George A. Chapman, Glens Falls; Dr. and Mrs. Henry A. Gribbon, Poughkeepsie, and Dr. John H. B. Denton, Freeport, have sailed for Europe.

Hostlers Contract Glanders.—Two hostlers are very ill with glanders at Poughkeepsie. It is believed that they contracted the disease from infected horses, twenty of which were shot. A dozen more are isolated and under inspection.

New York City

Lutheran Hospital Plan.—The Lutherans of New York are working for the erection of a hospital to be used especially for the Lutheran poor. The Lutheran Inner Mission Society has organized a district medical service, composed of 15 medical men located in the fifteen districts into which Manhattan and the Bronx have been divided for this purpose. The physicians respond to calls sent by ministers or church workers to treat cases in Lutheran families who are unable to pay for medical and surgical aid.

Memorial Fund for the Academy of Medicine.—The will of Mrs. Margaret E. Gray provides a bequest of \$50,000 to the New York Academy of Medicine to establish the Landon Carter Gray Memorial Fund in memory of her husband, who died about ten years ago. She directs that the income be used to purchase books from time to time and that all such books have inserted a book plate which she has designed for this purpose. The will also leaves \$5,000 to Dr. William B. Pritchard and \$3,000 to Dr. John J. McPhee.

Congestion in Manhattan.—Stanley D. Asheed, head of the Department of Civic Design of Liverpool, England, in a recent address before the Commission of Congested Population made the statement that the congestion in Manhattan exceeds by two-thirds that of any European city. He suggested the removal of all factories from the restricted areas and the development of more lines of communication, as measures that will attract people from the congested districts, and strongly urged the necessity for making greater efforts towards decentralization.

Work of Crocker Cancer Research Fund to Begin.—The George Crocker Cancer Research Fund of Columbia University has undertaken to make examination of suspected tissues provided that the physician will furnish the information needed for its statistical investigation of the etiology of cancer. It is hoped that the profession will avail itself of this offer as the early diagnosis of cancer is of inestimable value to the patient and to the profession—and as, at the same time, the statistics thus obtained will be of great value to those engaged in the research work. The Department of Health has agreed to co-operate with the Department of Pathology of Columbia University, and by the middle of October each collection station of the board will be supplied with jars to be used for specimens of tissue suspected to be cancerous.

Milk Committee Plans Work.—Following the announcement that after this season Nathan Straus will discontinue the pasteurized milk stations in this country owing to the persistent attacks of a New York newspaper on milk pasteurization ventures, the New York Milk Committee is seeking funds for the purpose of undertaking an experiment to determine the nutritive value of raw and pasteurized milk. It asks for \$3,000 before the first of October for this work. This committee in its infant milk depots fed a large number of babies during the period of 1908-1909 on raw and pasteurized milk, the milk in each instance coming from the same dairy. They wish to supplement this investigation by a further intensive study of babies under conditions which they can more nearly control and by chemical laboratory study of the nutritive properties of heated milk. Dr. H. S. Sherman, professor of nutrition at Columbia University, has placed at the disposal of the committee the laboratory equipment of that department. Dr. Godfrey R. Pisek will supervise the work and the laboratories of Dr. Charles E. North, chairman of the milk committee's committee on sanitation, bacteriology, and public health have been offered for the bacteriologic and chemical work.

Osteopaths Again Defeated.—In the case of Dr. Charles F. Bandle who applied for a mandamus to compel the Board of Health to grant a burial permit on a death certificate pre-

sent by him, the supreme court has refused the mandamus. The decision was accompanied by the following memorandum:

While the state has wisely allowed the practice of osteopathy, it does not follow that it thereby holds out one, without any practice in surgery or experience in prescribing drugs, as fully qualified to certify the cause of death. Indeed it is not certain that a board of health would be compelled to take the certificate of death of all licensed physicians in the event of an epidemic or the spread of some new and mysterious disease.

Granted that the theoretical education of the osteopath is of a standard equal to that of a doctor of medicine, after he enters on his profession his practice is restricted, so that it does not appear that he can make the tests by examination of blood and tissues by which alone many diseases can be certainly detected.

The sanitary code is discriminatory, but the discrimination is not personal and arbitrary. It is based on a limitation which the osteopath may be said to make for himself, and deprives him of no rights which he ought to exercise consistent with the public safety.

Bequest to Hospital.—By the will of Mrs. Harriet Coles the Presbyterian Hospital benefits to the extent of \$7,500, which is to be used for founding a bed in perpetuity, the rector of St. Paul's Episcopal Church at Glen Cove having the right to nominate the use to which the bed shall be put from time to time.

Buffalo

Personal.—Drs. Harry M. Weed, Herriot C. Rooth, John C. Thompson and wife, and Otto S. McKee have gone abroad.—Dr. Edwin A. Bowerman has been appointed lecturer on hygiene in the University of Buffalo Medical Department.—Dr. Matthew D. Mann, emeritus professor of obstetrics and gynecology, will continue his duties as dean of the faculty.

Anterior Poliomyelitis.—The Department of Health has sent out circulars to all physicians stating that with the increase in the number of cases of anterior poliomyelitis or infantile paralysis, the department deems it wise to take precautions to prevent its spread. Immediate report of all suspicious cases must therefore be made to the department from now on. Although such houses will not for the present be placarded, quarantine must be observed.

OHIO

Campaign Against Blindness.—The State Board of Health, on August 22, inaugurated an active campaign against ophthalmia neonatorum. A letter with a sterilized dropper and a quantity of silver solution was sent by the board to every registered physician of the state, with instructions for use.

Personal.—Dr. Charles A. L. Reed, Cincinnati, sailed for Europe, August 18, to attend the International Congress on Gynecology and Obstetrics.—Dr. Dudley P. Allen, Cleveland, for many years visiting surgeon at Lakeside Hospital, has resigned from the staff, and from his chair in the Medical Department of Western Reserve University, has given his library to the Cleveland Medical Library, disposed of his instruments and appliances, retired from practice, and with Mrs. Allen, sailed for Europe, August 9.—Dr. Charles T. Swaney, Niles, has announced that he is about to give up practice, and will take charge of a department of the Massillon Rolling Mill Company.—Dr. Benjamin C. Bernard has been appointed a member of the Alliance Board of Health.—Dr. James Donnelly, Toledo, is reported to be critically ill with typhoid fever at St. Vincent's Hospital.—Dr. Samuel C. Nieman, senior-assistant surgeon at the National Military Home, near Dayton, has resigned, and will practice in Cincinnati.

OREGON

Personal.—Dr. Max F. Clausius, physician of the United States Indian Service at Siletz, is taking a vacation trip through Alaska and British Columbia.—Dr. Charles G. Sabin has been appointed city bacteriologist of Portland, vice Dr. Ralph C. Matson, resigned.

State Society to Meet.—The thirty-sixth annual meeting of the Oregon State Medical Association will be held in Portland, September, 7, 8, 9, under the presidency of Dr. Edward A. Pierce, Portland. At the public meeting addresses will be delivered by Dr. Walter T. Williamson, Portland, on "The Value of Exercise and Rest to the Public Health;" by Dr. Charles J. Smith, Pendleton, on "School Hygiene;" by Dr. Andrew C. Smith, Portland, on "The Value of Pure Food," and by Dr. Calvin S. White, Portland, on "The Relation of Pure Water to Public Health."

Sanatorium Soon to be Opened.—It is announced that the State Tuberculosis Sanatorium, near Salem, will be opened the first week in September, under the charge of Dr. Harvey J. Clements, superintendent and medical director. The pres-

ent capacity of the sanatorium is 50 patients, which will be apportioned to the various counties in their ratio to population. The sanatorium is located on the west slope of the hill 5 miles southeast of Salem, protected from north and east winds, at an altitude of 400 feet above the sea. The brick building on the site formerly occupied by the Mute School will be used as headquarters and modern cottages and ideal sleeping porches have been constructed.

PENNSYLVANIA

Stamp Sale to Benefit Hospital.—The directors of the Jewish Sanatorium for Consumptives, Eaglesville, expect to sell one million stamps at the time of the Jewish New Year. These will be sent to stores, lodges, societies and individuals, and their sale will assist the movement to erect a children's pavilion.

Milk Adulterators Arrested.—Embalming fluid, having formaldehyde as one of its chief ingredients, has been found by the agents of the State Dairy and Food Commission in milk sold to the trade in Allegheny County. Informations have been laid against 17 dealers charged with adulterating milk and cream. These men have been arrested and await hearing.

Personal.—Dr. Kerwin W. Kinard, Lancaster, has been commissioned as a lieutenant in the medical corps of the United States Army.—Dr. George D. Nutt has purchased the Bishop Darlington property in Williamsport, and the building on the property will be remodeled and a hospital established. Other local surgeons are associated with Dr. Nutt in this enterprise.

Philadelphia

Cornerstone to be Laid.—The cornerstone of the new building, known as Bradley Hall, to be erected on the grounds of the Methodist Hospital, will be laid with formal ceremonies on September 10. The structure, planned to harmonize architecturally with the rest of the hospital buildings, will contain modern kitchens, refrigerating plant, dining rooms, etc., on the first floor and suites for superintendent and chief resident, rooms for residents and class rooms on the three upper stories.

Personal.—Drs. William W. Babcock, John G. Clark and John Sibbald have returned from Europe.—Dr. Edward Krumbhaar, intern at the Pennsylvania Hospital, is seriously ill with typhoid fever at that institution.—Dr. Algernon B. Jackson has resigned as assistant surgeon to the Polyclinic Hospital to take the position as surgeon-in-chief to Mercy Hospital, an institution conducted for the indigent sick of the colored race.—Dr. James Wallace, formerly chief of the eye department of the hospital of the University of Pennsylvania, left his home on July 31, and has not been heard from since.

Inspectors Seize Goods.—Chief Inspector Jenkins, of the local U. S. Pure Food and Drug Department, ordered on August 23 the seizure of 1,500 pounds of "frou-frou cakes" manufactured by a company of Amsterdam, Holland, and alleged to contain boric acid. The seizure was made at Pennsylvania Railroad Pier 10, where the goods were awaiting delivery to a jobbing house. The inspectors also ordered the seizure of 114 gallons of crushed pineapples at a warehouse at Front and Lombard Streets. The cans, which are said to have contained filthy and decomposed vegetable substance, were shipped in that condition from Hawaii by the Pearl City Fruit Co. At an ice cream factory on South Swanson Street, 19 cases, containing 1,100 pounds of crushed pineapple, were seized. These were shipped by the Pearl City Fruit Co. and the Pineapple City Fruit Co., of Hawaii.

VIRGINIA

Hospital News.—Dr. J. Allison Hodges, Richmond, has purchased a tract of seventeen acres at Westhampton whereon to establish an annex for the Hygiea Hospital for convalescent and rest-cure patients.—Work has begun on the annex of the Stonewall Jackson Memorial Hospital, Lexington.

New Medical Association.—The Shenandoah Valley Medical Association with a membership including every county of the Seventh Congressional District, was organized August 10: at Winchester, with Dr. Durus D. Carter, Woodstock, president; a vice-president from every county of the district, and Dr. Walter Cox, Winchester, secretary-treasurer.

Free Treatment of Hydrophobia.—The State Health Department has made arrangement whereby persons exposed to rabies and not in a position to pay for treatment at a reg-

ular Pasteur institute, will be treated free of cost. Dr. Ennion G. Williams, state health commissioner, has secured a sufficient supply of serum from the Public Health and Marine-Hospital Service to meet the demand.

Personal.—Dr. Edwin M. Sneed, Garrisonville, has been elected secretary, and Drs. Elliot T. Jett, Fairmouth, and William H. H. Tate, Tackett's Mills, have been appointed members of the board of health of Stafford County.—Dr. Paulus A. Irving, Richmond, announces that he will give up practice and move to Prince Edward County on account of the ill health of members of his family.—Dr. George H. Reese, Franklin County, has been appointed a member of the staff of the Central State Hospital, Petersburg.

WISCONSIN

Bubbler Succeeds Fountain.—In accordance with the state law prohibiting public drinking cups in public, private, and parochial schools and other educational establishments, the board of education of Superior is said to have ordered sanitary drinking fountains to be installed in the public schools of the city.

Society Meeting.—The annual meeting of the Southeastern Wisconsin Physicians' Association was held in Racine, August 17, with about one hundred in attendance. Elkhorn was selected as the next place of meeting. Dr. Edward Kinne of that city was elected president, and Dr. Milton V. De-Wire, Sharon, secretary-treasurer.

Increase in Faculty.—Marquette Medical College has made the following additions to its staff: department of internal medicine, Drs. Robert Brown and William H. Washburn; department of dermatology, Dr. Robert G. Washburn; department of obstetrics, Dr. Gustave A. Hipke, and department of ophthalmology, Dr. James A. Bach.

Anti-Spit Bullets.—The Wisconsin Antituberculosis Association has provided ammunition for use in its war against expectoration in public places. This ammunition is known as an "anti-spit bullet" and consists of a little slip, one side of which contains an appeal to help eradicate consumption from Wisconsin, and the other side a warning from the health officer regarding spitting in public places, its dangers and penalties.

Work of State Laboratory.—During the past year the State Hygienic Laboratory at the State University, Madison, has examined 804 specimens for diphtheria; 1,048 specimens of sputum for tuberculosis; has made 406 water tests; the Widal test in 497 cases, and 407 miscellaneous examinations for anthrax, glanders, blood, and tuberculosis, and 146 examinations for rabies, and has given the pasteur treatment to 89 individuals.

GENERAL NEWS

Cotton-Seed Oil and Butter.—According to the *Daily Commercial Trade Reports* Egypt produces annually about 40,000 barrels of cotton-seed oil, most of which is exported to England or used at home in making soap. The natives, however, have been educated to substitute cotton-seed oil for olive oil and they are large consumers, and 8,000 to 12,000 barrels of the better grades are annually imported from England and the United States. These grades are used exclusively for mixing with olive oil, and it is said that these mixtures are sold as pure olive oil. In Egypt considerable olive oil is also used in making a native butter similar to the Indian product called ghee. This is made by boiling together for a long time cotton-seed oil, mutton tallow, real butter and perhaps one or two other ingredients. It is used largely by the natives instead of butter, and its preserving qualities are remarkable. It is palatable, wholesome and much cheaper than butter.

Public Health Association Meeting.—The thirty-eighth annual meeting of the American Public Health Association, whose membership includes United States, Canada, Mexico and Cuba, will be held in Milwaukee, September 5-9, under the presidency of Dr. Charles O. Probst, Columbus. The meetings will be held in the Milwaukee Auditorium, and the headquarters will be at the Hotel Pfister. The general topics for discussion are "The Relation of the University to Public Health Work," "Methods of Handling State Health Work," "The Inter-Relation of National Organizations Working in the Interests of Health," "Section Reports for General Meeting," "The Present Organization and Work for the Protection of Health in the Four Countries Represented in the Association," "Sanitary Engineering Questions," "The Prevention of Mental Defects and Mental Diseases," "The Relation of Unnecessary Noises to Health," and "The Necessity for Terminal Disinfection and Quarantine."

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 20, 1910.

Lowest Birth-Rate and Death-Rate on Record

The decline of the birth-rate is so continuous that many times the "lowest on record" has been reported in THE JOURNAL, and this must be done once more. According to the quarterly return the population of the United Kingdom in the middle of 1910 is estimated at 46,469,534, of whom 36,169,150 live in England and Wales. In these countries the birth-rate is in the proportion of 26 per 1,000 annually. This is 2.1 below the mean birth-rate of the 10 preceding second quarters and is the lowest recorded since the establishment of civil registration. The death-rate was in the proportion of 12.8 annually per 1,000. This is 2.3 below the mean rate for the last 10 years and is also the lowest on record. Infantile mortality measured by the proportion of deaths under one year to registered births was 91 per 1,000. This is 19 below the average of the ten preceding years and again the lowest on record. The causes of these declining figures have been fully discussed in previous letters.

Exposure of a Quack

One of the worst and most heartless features of quackery is the exploitation of such diseases as tuberculosis and cancer, which are unamenable to drugs. In Great Britain, it is but seldom that the law takes any notice of the most fraudulent promises of cure. Indeed, the government, by levying a stamp duty on all secret remedies, has made itself to a certain extent *particeps criminis*. The following case is happily an exception to the usual immunity of the quack: C. H. Stevens, of Wimbledon, who described himself as "an unregistered lung specialist," was sued by a woman for \$50, a sum which he promised in his advertisements to any patient whom he did not cure of consumption. The woman's husband was treated by him and died of pulmonary tuberculosis. Stevens denied any contract to pay \$50 in case of failure and said that the advertisements offering this sum did not appear until after the man's death. After evidence showing that he carried on an extensive business at Wimbledon, and had "Consumption and Lung Specialist" on a brass plate and that he offered the widow \$5 to withdraw the case he was closely pressed by the judge as to the composition of his "medicine" and its curative merits. After heated protests and much hesitation he said that he studied the curing of consumption under Dr. Stuart, of Somerset Hospital, Cape Town. Fifteen years ago, by accident, he came across a native remedy at Maseru, Basutoland. A native "doctor" showed him the plants from which it was made. Under pressure he declared that he still imported these Basuto plants into Wimbledon, but he could not say when the last consignment arrived. The judge suggested that the railway books could be consulted. Stevens said that he had been making the \$50 offer since last September, but had not yet paid it for a case of failure. The reason was that he had cured every patient except one. In giving judgment for \$50 in favor of the widow the judge said that the case was one of a class which was of the gravest importance to the public. Quack remedies were constantly put forward by imposters to play on the fears and hopes of despairing sufferers. In this case, there had been intentioned and well-considered fraud. It was a scandalous thing that poor people should be imposed on by a quack preparation of not the slightest use. He ordered the letters and documents in the case to be impounded. This is done with a view to their consideration by the public prosecutor. In the case of another quack preparation for consumption which was taken by a boy up to the time of his death a coroner made similar severe remarks and suggested a criminal prosecution (reported in THE JOURNAL) but none followed. The government does not appear to be alive to the criminal nature of these frauds and at present all that can be hoped is that they will be made amenable to the civil law.

Blind Masseurs for Patients Suffering from Beriberi

At the Seamen's Hospital, Greenwich, Mr. J. Canlie has introduced massage with Swedish movements for the treatment of beriberi. Following the example of the Japanese, the massage is performed by blind operators whose highly developed sense of touch is of great value in handling delicate patients. So far, the treatment has proved successful in restoring the energy of the atrophied muscles. Two Chinamen

are under treatment who could not put a foot to the ground. After two treatments by massage they began to gain strength and, a week after treatment was instituted, could move about the ward with comparative freedom.

The Milk Supply of London

In his annual report, Dr. Collingridge, health officer for the City of London, states that the inquiry into the character of the milk arriving in London has gone on since 1902. Of 32 samples examined bacteriologically 14 were fairly clean and pure, 14 unclean, and 4 tuberculous. This was the largest proportion of tuberculous milk found since the beginning of the inquiry. In 3 of the farms whence this milk came the cows were found suffering from tuberculosis of the udder or generalized pulmonary tuberculosis. A large proportion of the samples of milk—90 per cent.—contained dirt. Few precautions were taken to prevent contamination of the milk by dirt and other impurities. This can never be entirely obviated while the old, badly designed churns are in use, but many farms are now adopting an improved pattern designed for the exclusion of aerial and other contamination. From other returns it is evident that an enormous quantity of tuberculous milk is distributed throughout the country and a still larger proportion is contaminated with other pathogenic organisms. Owing to neglect of elementary precautions at dairy farms, supplies more often than not are contaminated by the cows. The recent commission on tuberculosis has shown that a considerable amount of disease, especially in infants, is due to tuberculous milk.

Florence Nightingale

On August 13, Florence Nightingale, the pioneer of scientific nursing and one of the heroines of British history, died in her ninety-first year. She was the daughter of a country gentleman of considerable wealth. Even when a child she showed extremely strong sympathies, quick apprehension and excellent judgment, and at the same time was the consolator and benefactress of all the villagers on her father's estate. She was carefully educated in classics, mathematics, and modern languages. She visited the hospitals in London, Dublin, and Edinburgh, and many country hospitals, as well as naval and military ones. She studied nursing on the continent at Paris under the *Sœurs de Charité* and at the Institute of Protestant Deaconesses at Kaiserwerth on the Rhine. On returning to England, she was appealed to on behalf of the Home for Sick Governesses, in London, which was languishing for want of support as well as management. She took over its control and devoted to it time, energy, and fortune, and re-established it on a sound basis. Thus unconsciously she spent 10 years in preparing for the great event of her life. When in 1854 the battle of Alma was fought in the Crimea, the reports of the condition of the sick and wounded sent a feeling of horror throughout England. The commonest accessories of a hospital were wanting; the sick had to be attended by the sick. Miss Nightingale wrote to the Secretary of War offering to go out and at the same time her letter was crossed by one from him asking her to go "as the only person in England capable of organizing and superintending a scheme for nursing the wounded soldiers." Within a week she had selected from hundreds of offers received from all parts of the country a staff of 38 nurses, including 10 Anglican sisters and 10 Roman Catholic Sisters of Mercy. On arrival, they found at Scutari 2 hospitals containing 3,000 men under appalling conditions. Neglect, mismanagement and disease rendered the scene one of unparalleled hideousness. The wounded lay on beds placed on the pavement and were bereft of all comforts. There was a scarcity alike of food and medical aid; fever and cholera were rampant. Even the slightly wounded who should have recovered under proper treatment were dying from lack of proper nourishment. Miss Nightingale at once set to work to evolve order out of chaos. Within 10 days she had an impromptu kitchen fitted up and a house near the hospital converted into a laundry, which was sorely needed. To the sick and wounded she was indeed a ministering angel and her services excited unbounded devotion. When the medical officers had retired for the night she made her solitary rounds alone among the sick and dying with a little lamp. As her fragile figure passed by the soldiers' faces softened with gratitude. In spite of delicate health she was known to stand 20 hours on the arrival of fresh detachments of wounded, apportioning quarters, distributing stores, and directing her staff. During the first 7 months of her stay in the Crimea the mortality was 60 per

cent. per annum from disease alone, but later this was much reduced. After the war a fund was established as a national commemoration for her services and yielded an income of \$225,000. It was devoted to setting up a training school for nurses at St. Thomas' Hospital and to the maintenance and instruction of midwifery nurses at King's College Hospital. But for herself she would have neither public testimonial nor public welcome. Her fame was on every lip and her name a household word among the peoples of the world, but her life ever after was little better than that of a recluse and confirmed invalid. Though physically weak, her mental strength was great and she remained devoted to the cause of nursing. She was the general adviser on nursing organization not only of her own but of foreign governments and was consulted by ministers and generals at the outbreak of all our wars, and expounded important schemes of sanitary and other reforms. She was the means of inspiring more humane and more efficient treatment of the wounded in the American Civil War and in the Franco-German War. The nursing school at St. Thomas' Hospital proved very successful and led to the establishment of the numerous schools which now exist throughout the country. She wrote much and well on nursing. Her book "Notes on Nursing" was so clear and practical that 100,000 copies were sold.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 19, 1910.

Twentieth Congress of Alienists and Neurologists of France and French-Speaking Countries

The above-named congress was held in Brussels, August 1 to 7. Three questions were discussed: (1) sleeping-sickness; (2) cutaneous lesions in mental and nervous affections, and (3) alcoholism and criminality.

SLEEPING-SICKNESS

Dr. Van Campenhout, professor at the Brussels school of tropical medicine, read a paper on this subject, emphasizing the rôle of the *Glossina palpalis* as an indispensable factor in the propagation of the disease. Transmission by sexual relations conceded by Koch, is impossible. In America, the trypanosome has never been transmitted to American-born women. The numerous Europeans who have returned infected with trypanosomiasis have never caused a single European case of sleeping-sickness.

The diagnosis of sleeping-sickness is easy at the second and the third stages, but not at the first. As Dr. Granjux said in the course of the discussion, it is most important that the diagnosis should be made early, not only because of the greater chances of cure, but also because, in proportion as sleeping-sickness is understood better and recognized earlier, psychic troubles are more and more frequently found present at the outset, constituting, Granjux believes, a "medicolegal" period, during which the patient is liable to various errors of judgment which may involve serious consequences. This being the case, every individual who has sojourned in a region infested by the tsetse fly and who presents symptoms analogous to those of general paralysis should be examined for the trypanosome, whether or not he happens to be syphilitic.

ALCOHOLISM AND CRIMINALITY

This question was the subject of a paper by Dr. A. Ley, head physician at the sanatorium of Fort Jaco, Uccle, and Dr. René Charpentier, head of the clinic of mental diseases at the Paris college of medicine, who first cited numerous statistics showing the influence alcoholism has over criminality.

The statistics of the Ste. Anne Asylum at Paris are particularly instructive. Out of 885 offenses and crimes for which 801 patients were confined in this establishment from 1905 to 1909 inclusive, 370, or 41.8 per cent., were attributable to various forms of alcoholism. In Scotland and Ireland, the number of arrests for inebriety have diminished with the diminution in the number of hours that the public-houses are allowed to remain open; and Sunday criminality has diminished markedly since the complete closing of places for the sale of alcoholic drinks has been made compulsory on that day.

The present laws of Belgium and France on the subject of criminal inebriety, the essayist remarked, are inefficacious and insufficiently enforced. When an offense or crime due to alcohol is committed, the accused is subjected to

medicolegal examination and adjudged either irresponsible or semiresponsible; in the first case he is put in confinement; in the second there is a diminution of the penalty. In either case, the results are bad, both legally and medically. Legally, the penalty is not sufficiently exemplary; medically, the period of the moral treatment of the criminal is too limited. Special establishments are necessary in which criminal inebriates may be judicially confined. Such institutions exist in many countries and are provided for by the new bill which has passed the French Chamber of Deputies. It was in Switzerland, where there are now twelve such establishments, that asylums for inebriates were first founded. Great Britain, the United States, New South Wales and New Zealand have recognized the uselessness of the temporary confinement of delinquent inebriates in prisons, and have founded special asylums (reformatories) for such criminals, discharge from which is granted only on a solemn promise of total abstinence. Thirty to 50 per cent. of cures are recorded. All those who have had any considerable experience with asylums for inebriates agree in saying that only a course of total abstinence, lasting from six months to two years or more, is capable of effecting cures. The work-cure ought to be methodically applied. Allowing inebriates in asylums to become inactive or lazy should be avoided by all means. The physicians and all the members of the staff of an asylum for inebriates should be total abstainers, for mere temperance does not afford a proper example.

In reviewing the measures of social prophylaxis, Drs. Ley and Charpentier emphasize particularly the rôle of local option, showing how, in the United States, many of the southern states have been able to attain prohibition without undue friction by local option. By examples from the United States, the essayists show that criminality waxes with the sale of alcoholic drinks, and wanes with its suppression. Thus in New Hampshire a period of license following a period of prohibition gave the following figures for the increase in the numbers of those committed to penal institutions:

1902 (last year of non-license).....	473
1903 (first year of license).....	838
1904 (second year of license).....	1,337
1905 (third year of license).....	1,637
1906 (fourth year of license).....	2,181

Drs. Ley and Charpentier concluded that the broadest and most fertile field of experience for social measures against alcoholism is at present found in the United States of America, where all systems are put in practice: monopoly, high license, restriction of the number of saloons, closing on certain days, concentration in one quarter of the city, local option and prohibition. There is, moreover, a struggle going on there between the saloon interests, which wield a considerable power, and the prohibition party, which is carrying on an enthusiastic and active propaganda.

Louis Farabeuf

Dr. Louis Hubert Farabeuf, former professor of anatomy at the Paris college of medicine and member of the Académie de Médecine, has just died, aged 69. Appointed head demonstrator in anatomy at the Paris college of medicine in 1878, he became, nine years later, professor of anatomy and occupied this chair until 1902, when he retired and was replaced by Poirier. While the latter was not only an anatomist, but a surgeon whose practice increased so as to be somewhat prejudicial to instruction, Farabeuf was devoted exclusively to instruction, for which he had extraordinary gifts, his lessons being of remarkable clearness and definiteness. The same qualities were found in his monograph on the blood-vessels of the perineum and the pelvis, published in 1905 and his "Introduction to the Clinical Study and Practice of Obstetrics," published in collaboration with Dr. Varnier, in 1891; but the book which brought Farabeuf his greatest reputation was his "Précis of Operative Technic," comprising the operative technic of ligatures, amputations and resections, which has had several successive editions since 1872, the last having been published in 1909. This work is a veritable masterpiece of clearness and precision.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, August 11, 1910.

Personal

At the end of the summer semester, Professor Riedel, director of the surgical clinic at Jena, resigned his position. Riedel had to undergo an amputation for arteriosclerotic gangrene six months ago.

Another X-Ray Victim

A victim to x-ray cancer like the London physician Cox, who lately died of this disease, is furnished by Prof. Albers Schönberg, the well known x-ray investigator at Hamburg. He acquired an ulceration of the skin during his early studies before the injurious action of the Roentgen rays was known. This eventually underwent malignant degeneration and recently necessitated the amputation of his left forearm. Some fingers of the right hand are also crippled. Other x-ray investigators have chronic incurable skin affections. Sterility occurs in consequence of exposure to the Roentgen rays more frequently than is generally known.

International Thalassotherapy Congress

The Fifth International Congress for Thalassotherapy will meet at the well known German watering place on the Baltic, Colberg, in Whitsunday week of next year. Dr. Foerster, the director of the Prussian medical bureau, has the presidency of the German committee.

Organization of Rescue Work in Mines

The numerous severe catastrophes that have occurred in the last few years in the mines of various countries have compelled the authorities to give attention to the development of a life-saving service for mines. In Germany for a long time much attention has been given to the manufacture of life-saving apparatus. The management of many mines have trained special rescue crews for their mines and in some mining districts rescue emergency stations have been established. A further development of this organization is now contemplated in one of the largest mining districts of Germany, the Rhenish-Westphalian anthracite coal districts. In this district where already the individual mines possess 7,000 sets of rescue apparatus and 2,500 trained men in the rescue crews it is planned to establish a central station for the mine rescue service. This bureau is to keep in stock the apparatus for rescue of miners, and to supervise the training of the men from all the mines. This supervision is to be carried out by expert officers. In order to keep the training of the crews at its highest efficiency, the officers of the rescue stations are occasionally to take part in the exercises of the rescue crew. A further function of the bureau is the testing and reporting on new forms of apparatus and other branches of rescue work.

The Campaign Against Pulmonary Tuberculosis by the Wage-Earners' Insurance Organizations

According to official statements, 42,000 persons were treated for pulmonary tuberculosis in 1909 by the German invalid insurance societies. In order to determine the results of the treatment of tuberculosis in the public sanatoria, the imperial insurance office instituted investigations as to how many of the persons treated in the sanatoria were able to work five years after their dismissal. It was found that in the period of treatment from 1897 to 1901, at the end of the period 25 per cent. of the men and 32 per cent. of the women had their earning capacity restored. At the end of the period from 1904 to 1908, on the other hand, 44 per cent. of the men and 51 per cent. of the women were still able to work. The results of the treatment have markedly improved in recent years. The statistics also show that even patients in the third stage of tuberculosis (according to the classification of Turban and Gerhardt) are favorably influenced by the public sanatoria; of 3,590 men in the third stage, 1,649, that is, 47 per cent., were able to work on dismissal, and of these 553 have passed into a more favorable stage. Of 9,160 men in the second stage, 85 per cent. were able to work.

Study of Epizootics in German Southwest Africa

Professor Ostertag, the director of the veterinary department of the imperial health office, has been sent out by the imperial colonial office for the study of epizootic diseases in German Southwest Africa. He is to gather information by investigations on the ground respecting the character and the control of animal pestilences, especially that recently observed among sheep. In addition, Professor Ostertag is to make recommendations on the basis of his observations as to the best method of making use of scientific experience regarding animal pestilence by the establishment of appropriate organizations and especially by the development of the existing bacteriologic station.

Health and Vital Statistics of Prussia in 1908

From the report of the medical bureau of the Prussian department of education on the public health for 1908 (which has just appeared) a number of general interesting facts can be learned. The number of births in Prussia was 1,308,283, an absolute increase of 9,902 over the previous year. Of these, 38,884 were stillborn, an increase of 229 over the previous year. The proportion of the living born to 1,000 inhabitants was 32.99, a proportion which is smaller than that of any year previous to 1901. Of 1,000 births in the city, 30.43 were stillborn, but in the country 29.21. Of those born living, 651,426 were males, 617,973 females. The births of male children per 1,000 inhabitants diminished 0.32 over the previous year, that of female 0.15. Of all the births, 16,884 were plural, 16,716 being twins, 167 triplets, and 1 quadruplet. Of 1,000 children born in plural births, 42.31 were stillborn, making 13 more than single births. The number of marriages in 1908 were 311,331, nearly as many in the towns as in the country. (Prussia had a population of 3,293,324 in 1905.)

There were 693,724 deaths in 1908, an increase of 12,775 over the previous year. The excess of living births over the deaths was 575,675, which, with the exception of 1907 and 1906, is more favorable than in previous years. Of 1,000 inhabitants 19.17 male and 17.02 female, or altogether 18.03 persons died, a figure more favorable than in all previous years. The mortality in large cities of over 100,000 inhabitants remains on the average, 16.51 per 1,000 living, below the average of the entire nation (18.03). The highest mortality is shown by the city of Posen (22.24), the lowest by the city of Schöneberg (11.44). Berlin had a death-rate of 15.42.

Miscellany

Military Psychiatry.—An interesting article by R. L. Richards, Captain Medical Corps, U. S. Army, on military psychiatry, appears in the *American Journal of Insanity* for July. He reviews the practice in foreign countries as regards the insane in the military and naval services and credits Russia as having been in some measure a pioneer in this matter. That country also gave the first practical demonstration of the necessity and importance of a complete psychiatric service from the firing line to the home hospitals in the late Japanese-Russian war. Most countries give more or less psychiatric instruction to military surgeons, the United States being about the last in the field. Psychiatric instruction is now being afforded to army medical officers in the Government Hospital for the Insane, Washington, D. C., which offers special advantages for this purpose. The most important problems confronting military surgeons in this regard are the special character of the insane patients that will come under their charge, the specially dangerous character of insanity occurring in certain military situations, the peculiar liability to it under the conditions of special stress which the soldier undergoes, and the necessity of proper scrutiny of recruits. The military insane are younger in years and show a higher recovery rate. The special conditions of exhaustion, specific poisons, etc., produce a comparatively simple form of mental disturbance tending to early recovery. A large number of men recover before reaching the home hospital. On account of the nature of military life the insane are potentially dangerous to a large number of people. An insane man in a regiment is a weak point in the line and this is especially true with the complicated organization of armies in modern warfare. Any physical or psychical weakness also comes to the front under such conditions. During the Russo-Japanese war the insane were seen wandering around everywhere in the battle line in spite of the best organization that the world has ever seen (Oserezkowski: *Militärwochenblatt*, 1906, No 140). In one instance a whole regiment was put into a panic which could only be explained by psychic infection from some mental weaklings. There is no way of preventing the presence of some such in a battle. Richards' investigations show that of the military insane received at the Government Hospital for the Insane, 13 per cent. had had previous attacks of insanity; 60 per cent. showed degenerative stigmata and 15 per cent. had had suspicious symptoms

in their history. An appreciable proportion of the military offenders of the army are also to be classed among the psychic weaklings. The remedies for the conditions mentioned are simple in principle but somewhat difficult of application. Other countries are more strict in this regard than ours. The standard of mental efficiency fixed by Congress for an enlisted man is simply that he must "speak, read and write the English language" and take out his first citizenship papers. We have not, in this country, the police records, the school reports, etc., which are available in European countries, and we have to depend largely on the three months observation at the recruiting station to determine the fitness of the man for military service. In spite of all care, it is everywhere found impossible to prevent some incompetents passing the scrutiny. The question of establishing the degree of responsibility of the service for mental disability presents unusual difficulties from the fact that the etiology of mental diseases is not by any means usually clear. Hence the difficulty in case of application for pensions. It is especially difficult in the early stages of mental diseases during which the military surgeon has the cases under observation. The duty of the military surgeon in helping to establish the degree of responsibility of a military offender on account of mental defects is also mentioned and a knowledge of the conditions of military life is essential in considering these cases. The military surgeon has the advantage of better knowledge of the previous conduct of the offender under military conditions. The point has been made by a German authority that the legal, rather than the medical, standpoint must be taken since a military offense is relatively more serious and the effect on the regard for authority among the other soldiers is more dangerous than in civil life.

Disposal of Excreta.—Reporting his experiments on the disposal of excreta (*Public Health Reports*, Aug. 19, 1910), Dr. C. W. Stiles declares that if night soil containing fly larvæ is taken from surface privy and buried in 6½ inches of sterilized sand, the burial of the material does not insure the death of the insects; on the contrary the latter are able to penetrate the sand and to issue as adult flies. This emphasizes the fact that all fecal material should be rendered harmless, and raises doubt in regard to the popular faith in the dry system of disposal of excreta. Burial in 6½ inches of sand does not prevent hookworm larvæ from coming to the surface, and when placed in a 2 per cent. solution of crude phenol in water live eggs were found after 24 hours, but not at the next observation on the twenty-third day. This mixture killed hookworm embryos and larvæ in a few moments, observation being made under the microscope. Fly larvæ were also killed and flies did not oviposit on the floating fecal material treated in this manner, but on account of certain dangers Stiles does not recommend the use of this solution. Even 2 inches of water with a film of kerosene is exceedingly inhibitory to the development of the eggs of both *Ascaris lumbricoides* and *Necator americanus*. Under about 9 inches of water, with a film of kerosene, hookworm eggs begin to die after 4 days. Some may be found alive up to the twenty-ninth day, but no egg was found in the experiments which had developed to the "tadpole" stage. Stiles states that it would be unsafe from the standpoint of hookworm disease to throw the kerosene treated feces on the ground even after they had fermented for 33 days. If water and kerosene are added to a pail containing fly-blown feces, some of the fly larvæ succeed in crawling through the oil and escaping from the pail; but if the water and kerosene are placed in a tub before use, or before the feces become fly-blown, the feeding and breeding of flies, mosquitoes and other insects in the night soil seems to be eliminated, and thus the spread of filth and bacterial infection from the privy tub to food by means of insects appears to be excluded. The chief objections to the water-kerosene method seem to be that if the water is too deep splashing occurs; a tendency to economize may result in the use of too small a receptacle, the wet system calling for a larger receptacle than the dry; the feasibility of applying the method to manure piles in order to prevent the breeding of flies may be doubtful.

medicolegal examination and adjudged either irresponsible or semiresponsible; in the first case he is put in confinement; in the second there is a diminution of the penalty. In either case, the results are bad, both legally and medically. Legally, the penalty is not sufficiently exemplary; medically, the period of the moral treatment of the criminal is too limited. Special establishments are necessary in which criminal inebriates may be judicially confined. Such institutions exist in many countries and are provided for by the new bill which has passed the French Chamber of Deputies. It was in Switzerland, where there are now twelve such establishments, that asylums for inebriates were first founded. Great Britain, the United States, New South Wales and New Zealand have recognized the uselessness of the temporary confinement of delinquent inebriates in prisons, and have founded special asylums (reformatories) for such criminals, discharge from which is granted only on a solemn promise of total abstinence. Thirty to 50 per cent. of cures are recorded. All those who have had any considerable experience with asylums for inebriates agree in saying that only a course of total abstinence, lasting from six months to two years or more, is capable of effecting cures. The work-cure ought to be methodically applied. Allowing inebriates in asylums to become inactive or lazy should be avoided by all means. The physicians and all the members of the staff of an asylum for inebriates should be total abstainers, for mere temperance does not afford a proper example.

In reviewing the measures of social prophylaxis, Drs. Ley and Charpentier emphasize particularly the rôle of local option, showing how, in the United States, many of the southern states have been able to attain prohibition without undue friction by local option. By examples from the United States, the essayists show that criminality waxes with the sale of alcoholic drinks, and wanes with its suppression. Thus in New Hampshire a period of license following a period of prohibition gave the following figures for the increase in the numbers of those committed to penal institutions:

1902 (last year of non-license).....	473
1903 (first year of license).....	838
1904 (second year of license).....	1,337
1905 (third year of license).....	1,637
1906 (fourth year of license).....	2,181

Drs. Ley and Charpentier concluded that the broadest and most fertile field of experience for social measures against alcoholism is at present found in the United States of America, where all systems are put in practice: monopoly, high license, restriction of the number of saloons, closing on certain days, concentration in one quarter of the city, local option and prohibition. There is, moreover, a struggle going on there between the saloon interests, which wield a considerable power, and the prohibition party, which is carrying on an enthusiastic and active propaganda.

Louis Farabeuf

Dr. Louis Hubert Farabeuf, former professor of anatomy at the Paris college of medicine and member of the Académie de Médecine, has just died, aged 69. Appointed head demonstrator in anatomy at the Paris college of medicine in 1878, he became, nine years later, professor of anatomy and occupied this chair until 1902, when he retired and was replaced by Poirier. While the latter was not only an anatomist, but a surgeon whose practice increased so as to be somewhat prejudicial to instruction, Farabeuf was devoted exclusively to instruction, for which he had extraordinary gifts, his lessons being of remarkable clearness and definiteness. The same qualities were found in his monograph on the blood-vessels of the perineum and the pelvis, published in 1905 and his "Introduction to the Clinical Study and Practice of Obstetrics," published in collaboration with Dr. Varnier, in 1891; but the book which brought Farabeuf his greatest reputation was his "Précis of Operative Technic," comprising the operative technic of ligatures, amputations and resections, which has had several successive editions since 1872, the last having been published in 1909. This work is a veritable masterpiece of clearness and precision.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, August 11, 1910.

Personal

At the end of the summer semester, Professor Riedel, director of the surgical clinic at Jena, resigned his position. Riedel had to undergo an amputation for arteriosclerotic gangrene six months ago.

Another X-Ray Victim

A victim to x-ray cancer like the London physician Cox, who lately died of this disease, is furnished by Prof. Albers Schönberg, the well known x-ray investigator at Hamburg. He acquired an ulceration of the skin during his early studies before the injurious action of the Roentgen rays was known. This eventually underwent malignant degeneration and recently necessitated the amputation of his left forearm. Some fingers of the right hand are also crippled. Other x-ray investigators have chronic incurable skin affections. Sterility occurs in consequence of exposure to the Roentgen rays more frequently than is generally known.

International Thalassotherapy Congress

The Fifth International Congress for Thalassotherapy will meet at the well known German watering place on the Baltic, Colberg, in Whitsunday week of next year. Dr. Foerster, the director of the Prussian medical bureau, has the presidency of the German committee.

Organization of Rescue Work in Mines

The numerous severe catastrophes that have occurred in the last few years in the mines of various countries have compelled the authorities to give attention to the development of a life-saving service for mines. In Germany for a long time much attention has been given to the manufacture of life-saving apparatus. The management of many mines have trained special rescue crews for their mines and in some mining districts rescue emergency stations have been established. A further development of this organization is now contemplated in one of the largest mining districts of Germany, the Rhenish-Westphalian anthracite coal districts. In this district where already the individual mines possess 7,000 sets of rescue apparatus and 2,500 trained men in the rescue crews it is planned to establish a central station for the mine rescue service. This bureau is to keep in stock the apparatus for rescue of miners, and to supervise the training of the men from all the mines. This supervision is to be carried out by expert officers. In order to keep the training of the crews at its highest efficiency, the officers of the rescue stations are occasionally to take part in the exercises of the rescue crew. A further function of the bureau is the testing and reporting on new forms of apparatus and other branches of rescue work.

The Campaign Against Pulmonary Tuberculosis by the Wage-Earners' Insurance Organizations

According to official statements, 42,000 persons were treated for pulmonary tuberculosis in 1909 by the German invalid insurance societies. In order to determine the results of the treatment of tuberculosis in the public sanatoria, the imperial insurance office instituted investigations as to how many of the persons treated in the sanatoria were able to work five years after their dismissal. It was found that in the period of treatment from 1897 to 1901, at the end of the period 25 per cent. of the men and 32 per cent. of the women had their earning capacity restored. At the end of the period from 1904 to 1908, on the other hand, 44 per cent. of the men and 51 per cent. of the women were still able to work. The results of the treatment have markedly improved in recent years. The statistics also show that even patients in the third stage of tuberculosis (according to the classification of Turban and Gerhardt) are favorably influenced by the public sanatoria; of 3,590 men in the third stage, 1,649, that is, 47 per cent., were able to work on dismissal, and of these 553 have passed into a more favorable stage. Of 9,160 men in the second stage, 85 per cent. were able to work.

Study of Epizootics in German Southwest Africa

Professor Ostertag, the director of the veterinary department of the imperial health office, has been sent out by the imperial colonial office for the study of epizootic diseases in German Southwest Africa. He is to gather information by investigations on the ground respecting the character and the control of animal pestilences, especially that recently observed among sheep. In addition, Professor Ostertag is to make recommendations on the basis of his observations as to the best method of making use of scientific experience regarding animal pestilence by the establishment of appropriate organizations and especially by the development of the existing bacteriologic station.

Marriages

HOMER PERSELL PROWITT, M.D., to Miss Elinor Meyer, both of Washington, Pa., August 22.

OLIVER PERRY BIGELOW, M.D., to Miss Emma K. Wright, both of Independence, Iowa, August 19.

WILLIAM EDWARD LADD, M.D., Boston, to Miss Helen Katharine Barton, of Worcester, Mass., August 18.

LEO BERTHOLD AUERBACH, M.D., El Paso, Texas, to Miss Harriet Stribling Clark, of Chicago, August 20.

R. GAINSFORTH JAMES, M.D., Gaines, Mich., to Miss Edythe May Stiff, of Ann Arbor, at Windsor, Ont., recently.

Deaths

William James, M.D. Harvard Medical School, 1869; eminent as a psychologist; formerly instructor and assistant professor of physiology; instructor in anatomy; assistant professor and professor of philosophy; professor and emeritus professor of psychology in Harvard University; recipient of honorary degrees from many universities of Europe and the United States; Gifford lecturer on Natural Religion in the University of Edinburgh from 1899-1901; Hibbert lecturer on philosophy in Oxford University in 1908; author of standard textbooks on psychology; one of the founders of the American Society for Psychological Research; founder of the so-called "pragmatic" school of philosophy; of whose literary characteristics it was said that he wrote "science like romance;" died at his summer home in Chochorua, N. H., August 26, from heart disease, aged 68.

Joseph A. Scroggs, M.D. Rush Medical College, 1874; a member of the American Medical Association; emeritus professor of obstetrics in Drake University, Des Moines, Iowa; at one time a member and president of the State Board of Health and State Board of Medical Examiners; president of the Iowa State Medical Society in 1903; for many years surgeon of Keokuk & Western, and St. Louis, Keokuk & Northwestern Railways; died at his home in Keokuk, August 25, from diabetic gangrene, aged 62.

Abner Wellborn Calhoun, M.D. Jefferson Medical College, 1869; a member of the American Medical Association; pioneer oculist of the south; professor of ophthalmology and diseases of the ear, nose and throat, in the Atlantic College of Physicians and Surgeons; attending surgeon to Grady and Wesley Memorial hospitals and St. Joseph's Infirmary, Atlanta, Ga.; a Confederate veteran; died at his home in Atlanta, August 21, aged 65.

Guilford O. Bicknell, M.D. Vanderbilt University, Nashville, Tenn., 1882; a member of the American Medical Association and founder of the Munroe County Medical Society of Etowah, Tenn.; division surgeon of the Louisville & Nashville Railroad; died suddenly at a hospital in Danville, Va., August 12, aged 51.

John Wells Bulkley, M.D. Berkshire Medical College, Pittsfield, Mass., 1844; a member of the Medical Association of the District of Columbia, and senior member of the consulting staff of Providence Hospital, Washington, D. C.; died at his home, August 23, aged 86.

Francis Collamore, M.D. Dartmouth Medical School, Hanover, N. H., 1847; a member of the Massachusetts Medical Society; said to be the oldest practitioner in Plymouth county; died at his home in Pembroke, Mass., August 18, from cerebral hemorrhage, aged 84.

Elmer Erickson, M.D. College of Physicians and Surgeons, Chicago, 1909; assistant physician at the Elgin State Hospital; died at the Augustana Hospital, Chicago, August 17, from general peritonitis, following an operation for appendicitis, aged 22.

John W. Faucher, M.D. Indiana Medical College, Indianapolis, 1876; surgeon in the army during the Civil War and stationed at the General Hospital, Nashville, Tenn.; died at his home in Sheridan, Ind., August 19, from gastroenteritis, aged 71.

Jerome J. Valede, M.D. Detroit College of Medicine, 1882; a member of the Michigan State Medical Society; founder and president of the bank of Newport, Mich.; died at his home in that place, August 15, from chronic nephritis, aged 51.

Robert Thomas Bartram, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1886; a member of the Iowa State Medical Society; formerly of Albia, Iowa; died at his home in Ellsworth, Kan., August 12, from septicemia, aged 57.

John Morgan McLaughlin, M.D. University of Maryland, Baltimore, 1888; a member of the American Medical Association; of Webster Springs, W. Va.; died at a hospital in Clarksburg, W. Va., August 19, from typhoid fever, aged 50.

Herbert Marcus Goodman, M.D. Rush Medical College, 1909; an interne in Cook County Hospital; died at the home of his father in Chicago, August 19, after an operation for carcinoma of the pharynx, aged 27.

Arthur Benjamin Bevier, M.D. Bellevue Hospital Medical College, 1881; a member of the American Medical Association; died in his office in Ridgway, Pa., August 4, from cerebral hemorrhage, aged 52.

Russell Cleveland Campbell, M.D. Medico-Chirurgical College of Philadelphia, 1909; of New Germantown, Pa., is said to have committed suicide by taking cyanide of potassium, August 18, aged 24.

Clarence Lee Addleman, M.D. University of Pennsylvania, 1875; of Mammoth, Utah; a member of the State Medical Association; died in Greencastle, Pa., May 20, from narcotism, aged 67.

Dayne Hamilton Griffith, M.D. Jefferson Medical College, 1905; member of the staff of the Pittsburg, Pa., Hospital; died at North Bay, Ont., August 20, from acute gastritis, aged 26.

Emily A. Cady-Harris, M.D. Woman's Medical College of the New York Infirmary for Women and Children, 1889; died at her home in Rochester, N. Y., August 12, from diabetes, aged 49.

Henry Franz Koester, M.D. Bellevue Hospital Medical College, 1891; a member of the Medical Society of the State of New York; died at his home in New York City, July 28, aged 47.

Walter S. Graham, M.D. Hahnemann Medical College, Philadelphia, 1884; a member of the Florida Medical Association; died at his home in Miami, June 19, from tuberculosis, aged 52.

William Jefferson Easley, (license, years of practice, Ill.); formerly of Raymond, Ill.; died at the home of his daughter in Decatur, Ill., August 7, from senile debility, aged 82.

William Claude Usher, M.D. Harvard Medical School, 1908; an interne in the Boston Lying-in Hospital; was drowned in the Charles River, August 10, aged 24.

Joseph Brinton Crandall, M.D. Hahnemann Medical College, Chicago, 1878; died at his home in Clinton, Wis., July 4, from cerebral hemorrhage, aged 92.

Dana Bailey Goddard, M.D. University of Vermont, Burlington, 1899; died at his home in Brattleboro, Vt., July 22, from cerebral hemorrhage, aged 36.

George Donald Reid Simpson, M.D. University of Toronto, 1895; formerly of Hamilton, Ont.; died at his home in Toronto, April 8, aged 36.

August Hypolite Borey, M.D. Tulane University of Louisiana, 1905; died at his home in New Orleans, July 14, from appendicitis, aged 26.

Robert M. Gallen, M.D. Illinois Medical College, Chicago, 1904; died at his home in St. Louis, Mo., August 15, from diabetes, aged 34.

James A. Harris, (license, years of practice, Ill., 1878); died at his home in Carriers Mills, August 20, from heart disease, aged 74.

Walter Franklin Atlee, M.D. University of Pennsylvania, 1850; died at his home in Philadelphia, August 18, from pneumonia, aged 81.

James Brooks, M.D. Cleveland Medical College, 1844; died at his home in Ellington, N. Y., August 5, from carcinoma, aged 87.

Hiram Burton (license, Ind., 1897); died at his home near Somerville, Ind., August 17, from chronic nephritis, aged 78.

The privy is the great sanitary problem of the open country and non-sewered villages. As human carriers of bacterial and parasitic infections are not known, it is necessary to impress on the public that all human feces are dangerous. The burial of night soil without first treating it is dangerous and may result in disease. Burning or boiling human excreta is the ideal plan, but is not of universal feasibility. The surface privy is a distinct improvement over none, but is unwarranted in view of present day knowledge. The pail system is the least that can be demanded, but some safeguarding material should be used in the pail. If the dry earth system is used the privy must be made fly-proof. The advantage of the water-kerosene method is that it can be installed with so little trouble and change in present privies. Further studies are required on this system in connection with splashing and minimum time for fermentation. [The use of kerosene on night soil or on manure piles interferes with the usefulness of the material for fertilizer. Iron sulphate solution has been suggested as efficient in the destruction of fly larvæ in their breeding places, and does not prevent the use of the manure for fertilizer.—Ed.]

Some Symptoms of Intussusception.—Pain is of great severity and usually paroxysmal. Rarely is it continuous at the start, though it often becomes so during the second and third day. The pain is usually referred to the umbilicus and is most marked during the first two days. In chronic cases it is almost always absent. Vomiting is most marked at the onset, but may continue severe throughout the attack. It is not so much a symptom of intussusception as it is of acute intestinal obstruction. The vomiting is projectile and uncontrollable. At first it consists of stomach contents, but soon it becomes greenish from the presence of bile and then, if obstruction to the intestines is complete, it becomes fecal. Fecal vomiting is not common in infancy, only from 10 to 11 per cent. of children under ten years having it. It is a bad sign, though not always a fatal one, and rarely seen before the third or fourth day. Vomiting is absent in chronic cases. Bowel symptoms are prominent. Characteristic symptoms of acute intussusception are the bloody and mucous stools, present in three-fifths or more of all cases. The discharge of blood frequently follows the attacks of severe colicky pain. In some cases it is not discharged spontaneously, and only when an enema is given do we get any evidence of blood. The amount of blood passed each time varies from a mere trace in the mucus to an ounce. Constipation in acute cases is usually complete, neither gas nor feces being passed. There are usually one or two watery stools after the onset. In some cases the opening at the apex of the intussusception may not be completely closed and in these cases there is complete constipation. Tenesmus is present in one-third of the cases and especially if the tumor is in the large intestine. Tympanitic distention is seen in one-third of the cases and occurs usually on the second or third day, the abdomen being usually soft and relaxed during the first day or two. The distention is especially marked if the lower bowel is involved, whereas if the invagination is high up in the small intestines it may be so slight as to go unnoticed. In cases in which the opening at the apex of the intussusception is not entirely obliterated the distention may not be marked, even though the obstruction is in the large bowel. The tumor is one of the most diagnostic symptoms. It may be present as early as a few hours after the onset and in three-fourths of all cases it is found on the first day. —H. J. Morgenthaler, in *Am. Jour. of Obstet. and Dis. of Women and Children*.

Serodiagnosis of Syphilis in the Insane.—The thirty-first annual report of the Binghamton (N. Y.) State Hospital for the Insane in its pathologic section gives some data of interest in regard to serodiagnosis of syphilis in the insane. A series of cases was studied to determine the value of the precipitate reaction in the spinal fluid. The number of positive reactions in non-syphilitic cases was so great as to indicate that the precipitate reaction cannot be considered as specific for either paresis or syphilis. Similarly, Noguchi's butyric acid reaction was positive in so many non-paretic

cases as to be considered inconclusive, and it is stated that the small quantities of the various solutions used by Noguchi give misleading results. The Noguchi modification of the Wassermann reaction was used in about 50 cases with positive results in all the paretics and other patients with syphilitic history, while all the non-syphilitic cases gave negative reactions. In 20 cases of paresis the tuberculo-opsonic index was studied. One case showed an index above normal; 6 were normal and the average of the 20 was 0.6, which is below normal. This would indicate that paretics have no natural immunity to tuberculosis, which is contrary to the view expressed by an investigator in one of the New York hospitals last year (*THE JOURNAL*, Feb. 13, 1909). Two of the 25 deaths of paretics were due to tuberculosis.

Autotoxemia and Infection.—In a communication to the Royal Society, London, June 23 (*Nature*, June 30), E. C. Hort reported some experiments made to show that the injection of small quantities of distilled water alone would cause in small animals the phenomena of bacterial and protozoan infection, such as fever, loss of weight, and changes in the antitryptic values of the blood serum. He produced fever in rabbits and guinea-pigs by the injection of boiled distilled water, one to sixty centigrams, and by proper spacing of the injections continuous fever could be produced. Hypersensitization was frequently observed. Small single injections were not conclusive as regards loss of weight, but multiple injection always produced it. Multiple injections of simple boiled distilled water always produced marked rise in antitryptic values, strikingly parallel with those produced by diphtheria toxin or living bacteria injections in the same species of animal. From these results he draws the inference that a part, at least, of the disease-complex of infection is the result of a state of true auto-intoxication, however great may be the part played by the bacteria and protozoa. Such auto-intoxications he suggests may be in part directly due to the absorption of derivatives of the infected cells themselves and only indirectly to the absorption of bacterial products.

Neri's Sign of Organic Hemiplegia.—The *Nouvelle Iconographie*, XXIII, 1910, 88, gives an illustrated description of the sign to which V. Neri calls attention. In some cases this sign occurs alone and it may be elicited when the patient is in coma. It consists in the spontaneous bending of the knee as the leg is passively lifted, the patient in the dorsal decubitus. The sound leg can be raised to an angle of 70 degrees without the knee's flexing, while the knee of the paralyzed limb bends between 40 and 50 degrees. If the patient stands erect with folded arms and is then told to stoop forward, keeping the legs stiff, the knee flexes on the paralyzed side, while the sound knee remains stiff. This sign is not pathognomonic of organic hemiplegia but is useful to corroborate other signs.

Pertinent Questions.—Why conserve coal mines and not conserve the life of the coal miner? Why conserve the cotton plant and expend \$500,000 to fight the boll weevil and not conserve the people, who are to be clothed with the cotton? Why conserve the life of tree and fight the San José scale, and not conserve the people who eat oranges? Why conserve the life of the forest and forget the life of the forester and of his children? Why protect tree life and plant life and neglect human life? Why protect cattle from Texas fever and not protect people from typhoid and malarial fever? Why protect pigs and forget the children?—*Senator Owen, of Oklahoma*.

Sulphuric Acid Burns.—The spilling of sulphuric acid on the body or the clothes is not a very common accident, but it is well to remember that plenty of water applied immediately will prevent any harm. When spilled on clothes, sulphuric acid decomposes them so that they fall to pieces, but it should be generally known that application of water dilutes the acid and washes it away. Workmen sometimes break receptacles containing sulphuric acid, and malicious persons sometimes use it in the attempt to disfigure faces. If necessary, the hose can be turned on the affected person or he may be unceremoniously thrown into any body of water that is handy.

Dorsey's, and hosts of others now dead but great in the annals of medical discovery and service, like the laborious Duglison and others, like Paul Beck Goddard, who should be honored. Why is there not a memorial medical university, not an annex to a literary institution, but an independent exclusively medical university to Ephraim McDowell, to Nicholas Senn, to Valentine Mott and others like them, now gone to the glory of the skies, but not yet properly glorified by us here below in suitable structures of stone?

If we look for the living to memorialize there are the Mayo Brothers of Minnesota. There are Sajous, Shoemaker, and La Place of Philadelphia, to say nothing of Murphy, Finlay, Gorgas, Flexner, Ochsner, Billings, and many others among us yet in other cities and men abroad who have carved deathless names on Fame's memory tablets, and Osler, now not with us, but who worked like a trojan for Johns Hopkins.

At one time St. Louis, through its independent medical schools named after dead medical worthies, did more than any other city to keep the fame of its medical worthies alive by naming its medical colleges after them.

Why not have a renaissance of great men of medicine in memorial educational monuments to the work they did for the world's welfare, not in St. Louis and Chicago alone but in other cities and sections of the country?

Two St. Louis public schools bear the honored names of Pope and Hodgen. Why not name medical schools after them, also; and Watters, Linton, and others of that good old school? I saw John T. Hodgen in the amphitheater of the St. Louis Medical College more than thirty years ago, when he was teaching physiology there, repeat the demonstrations of Flourens on the cerebelli of pigeons and the school was then independent of Washington University, a two-year school with one previous year of home study with a preceptor its minimum requirement.

I saw practical toxicology demonstrated in such a way at the same school that I could never testify that hydrocyanic acid could take all day to kill a man as was testified to as a fact in the recent Hyde trial at Kansas City. This school had no university laboratory connection at that time either.

C. H. HUGHES, M.D., St. Louis.

Registration of Foreign Physicians

To the Editor:—I wish to express my approval of the letter on this subject in THE JOURNAL, August 6. I am a graduate of a medical school in Boston, but a South African by birth and held citizenship rights there before the war with England. Since my graduation here I endeavored to obtain the right of practicing in my own home, which has been denied me because of the laws existing in all British colonies. I have been given the privilege of taking an English degree, should I choose any of the colleges quoted by the council in London. As a means of obtaining this right, it was suggested that I go to Halifax (Nova Scotia) Medical College, where it would be easier to obtain a degree. This particular college has not received the approval of the Council on Medical Education of the American Medical Association or of the Carnegie Foundation. Nevertheless I was advised to go there by the registrar of the Medical Council of London, and to obtain a degree acceptable toward a certificate from the council in London which would enable me to practice in South Africa. Last year, in the Transvaal, after some agitation, through influential friends, a provision was made, which gave the right to the Transvaal Medical Council to grant certain privileges to South-African born students, desiring to attend and graduate from other than English medical schools.

It seems passing strange and unfair that the choice of the place of one's education should be denied to an inhabitant of a supposedly free and liberally governed country. It restricts the practice of medicine largely to the English, a great many of whom are graduates of colleges of not so good a standing as some American ones. If this information and protest will do any good to change the present state of affairs here and demand reciprocal rights, I shall be quite satisfied to remain here in my adopted country.

JAMES A. HONEIL, M.D., Cambridge, Mass.

The Whistle in the Stomach, Who Blew It First? A Question of Priority

To the Editor:—The story is different from that told by Benjamin Franklin, but the moral is strikingly similar.

Eleven or twelve years ago I was possessed by the ambition to devise a method by means of which the exact length of the esophagus might be clinically determined. While waiting for inspiration I did the customary thing—I whistled. Like Newton's discovery of the law of gravitation at seeing the apple fall, to me, likewise, came the idea while "wetting my whistle." Since my whistling at the esophagus and my whistling for the esophagus were like "whistling jigs to a milestone," why, thought I, whistling, not try to whistle into the esophagus? The result was that I did some more whistling and succeeded in hearing the sound of a whistle issuing from the innermost recesses of the abdominal viscera. To my ear it sounded like the first cry of my first-born.

I gave shape to my thoughts in a paper entitled "The Esophagometer or the Intragastric Whistle; A new Device for Measuring the Esophagus in the Living," which was read at the meeting of the Colorado State Medical Society, June 18-20, 1901, and which was subsequently published in the *New York Medical Journal*, Aug. 31, 1901.

I quote here a few lines referring to the principle on which the device is based and the description of the instrument.

My method is based on the principle of acoustics, that sound is produced by the vibrations of air, and on the facts that the stomach is a hollow organ containing air, and that the esophagus when not in the act of swallowing is an air-tight organ. Hence, a musical instrument, when introduced into the esophagus, will produce no sound whatsoever throughout the whole of its length, but so soon as it reaches the threshold of the stomach, the cardia, it will emit a sound.

My device consists of a stomach tube provided at its proximal end with a whistle. . . . The whistle is secured in the tube by tying it externally with a piece of catgut or silk. The tube is introduced into the esophagus, and air blown in by means of a pump, Davidson syringe, Politzer bag, the mouth, or what not. So long as the whistle traverses the esophagus the instrument is smothered and no sound is heard; but, so soon as the cardia is reached a distinct whistle is heard. The tube can be pushed forward and backward several times so as to ascertain the exact point at which the whistle becomes audible. The distance between the distal border of the side opening of the tube and the point at the incisor teeth where the whistling sound is first heard represents with precision the distance between the incisor teeth and the cardia.

An illustration of the instrument accompanied the article.

All these years I have been nursing the belief that I am the only and original whistler who first blew a note into the expanse of the stomach, and that to the end of time wherever the muffled sound of the intragastric whistle would be heard, there also the sound of my name would be echoed. But alas, my dream of fame and immortality is now hanging in the balance. There is another man who clamors for the honor and claims the first gastric blast.

Dr. Robert Coleman Kemp, in his treatise on "Diseases of the Stomach and Intestines" (Saunders, Philadelphia, 1910) gives a description and illustration of a stomach whistle which is identical with mine of 1901 vintage. Under the illustration is to be found the modest legend: "Kemp's Stomach Whistle."

The question at issue is: Who of us two whistled first into the stomach, and whether in the subsequent editions of Kemp's excellent treatise the legend under the illustration should be retained or changed.

I paid in full for Dr. Kemp's book and thought it was fully worth the price until I found there the story of the whistle, the moral of which, until proof to the contrary be forthcoming, is that I paid too much for my whistle.

C. D. SPIVAK, M.D. Denver.

[A proof of the above letter was submitted to Dr. Kemp, who replies:]

To the Editor:—Though I exercised considerable care during the preparation of my recent work on "Diseases of the Stomach and Intestines," especially in properly crediting other authors and their investigations, I must frankly confess that I had not seen Dr. Spivak's article or known of its

Pharmacology

HYDRONAPHTHOL

A correspondent having requested information regarding the composition of "Hydronaphthol," the product was investigated in the Association laboratory. The laboratory reports as follows:

Hydronaphthol is sold by Seabury & Johnson. The label on a trade package of Hydronaphthol gives no clew as to the nature of the product. The statements on the labels do, however, make the claim that Hydronaphthol is an antiseptic of great power, also that it is non-toxic and therefore may be used with impunity; thus the following statements are made:

"A harmless, practically odorless, non-poisonous, non-corrosive antiseptic . . ."
". . . It is non-poisonous and can be employed with perfect impunity as a preservative . . ."

The substance has the characteristic appearance, odor and taste of naphthol. It responded to all the tests of the United States Pharmacopeia for betanaphthol, with the exception of the melting point, which was found to be 119 C. instead of 122 C., an indication of impurity. It is evident, therefore, that Hydronaphthol is merely a trade-name for betanaphthol. While resublimed betanaphthol is listed at 10 cents an ounce, Hydronaphthol is listed at 75 cents an ounce.

Hydronaphthol thus furnishes one more illustration of the fact that most proprietary medicines for which the most extravagant claims are made are but old and well-known remedies sold under a fancy name at a price far in advance of that charged for the constituent or constituents. The exploiters are extremely positive in their statements regarding the non-toxic character of the preparation. Yet, as a matter of fact, betanaphthol is by no means harmless; it has been absorbed by the diseased skin with injury to the kidney and with fatal results. In some cases injury to the eye has also occurred. These toxic actions should be known to the practitioner. From 3 to 4 gm. (1 dram) applied to the skin has produced death (Stern: *Therap. Monatshefte*, 1900, p. 165.) When a manufacturer advertises a preparation which possesses potentialities for harm, and especially when he puts it out under a name which conceals its identity, it is incumbent on him to warn the customer of possible injurious or inconvenient actions instead of proclaiming that the preparation is harmless.

PROPRIETARIES IN ITALY

The general discontent with the way in which proprietary medicines are being advertised in Italy is voiced by Dr. A. Zambler, in a communication in the *Gazzetta degli Ospedali*. He states that Dr. Silingardi has recently prepared a brief on the subject to call the attention of legislators to it. The subject is one, Zambler remarks, which while of great interest to the medical profession is of far greater interest to the sick and suffering public. The public authorities, he continues, can no longer close their eyes to the matter as the advertising propaganda has become so incessant and pervading. He says that the third edition of the Italian Pharmacopeia includes a notable display of proprietaries and it is the only Pharmacopeia thus distinguished. He does not comment on their value but only remarks that their inclusion in the Pharmacopeia is an effective form of official advertising in favor of the richer manufacturing firms.

He suggests that the authorities should forbid the sale of all proprietaries that fail to obtain a certificate from the national board of health as to their therapeutic value. Zambler comments that the means to dispel the evil are within reach. All that is necessary, he states, is for physicians to agree on the matter, and for the authorities to have the good of the public in view rather than the good of commercial private interests, and to have the present sanitary regulations more strictly enforced.

Correspondence

Wanted: Specimens of Nervous System From Fatal Cases of Poliomyelitis

To the Editor:—I should be greatly indebted to you for any assistance that you could render me through the columns of THE JOURNAL in enabling us to secure specimens of the nervous systems from fatal cases of epidemic poliomyelitis, a disease which is widely prevalent throughout the United States and Canada at present. We should like to obtain portions of the spinal cord and, by preference, of the lumbar or cervical enlargement removed as soon after death as possible, and preserved in plenty of pure glycerin, Squibb's or Merck's or Kahlbaum's. These specimens are to be used for experimental purposes; they can be sent by express at our expense, or by mail addressed to me at the Rockefeller Institute, Sixty-sixth Street and Avenue A, New York City.

SIMON FLEXNER.

Anglo-American Medical Association of Berlin Employs Permanent Secretary

To the Editor:—For the benefit of those who wish to do medical work in Berlin, the Anglo-American Medical Association has employed a permanent secretary who, on request, will furnish information concerning the medical courses obtainable here, the approximate cost, etc. Letters should be addressed to the secretary of the Anglo-American Medical Association, 105 B Friedrichstrasse, Berlin, Germany.

H. O. BRUGGEMAN, President, Berlin.

Obliterating the Monuments

To the Editor:—To one who has yet a pride in the achievements of American medicine and in the glory of its great names, it is painful to see pass out the educational monuments that kept in professional memory the great men of American medicine and memorialized them before the public.

If medical colleges are to become only annexes of great literary and scientific endowed universities it is not necessary, nor is it kind, that the honored, worthy and great medical names they represent in many instances, and in others have borne, should be obliterated and lost to the rising generation and to posterity. The profession reveres the names yet and none need be ashamed of them though men who love them then wrought in or founded only two-year schools (may be), where such physics and biologic results only were taught as the students of medicine must needs then have had and anatomy was demonstrated when most of the world was asleep, and when conditions and demands of study were not as they are now.

Chicago still honors the name of Rush. May it never cease to keep that honored American name, the first among the great psychiatrists, though few schools are yet teaching psychiatry. But what school bears the honored name of N. S. Davis? What school has ever honored Dudley of Kentucky? And where is the name of Marion-Sims, borne by a once meritorious medical school of St. Louis, rejoicing in this great name and in medical independence? Merged and silenced into an annex to another institution, the Catholic St. Louis University and the Beaumont.

And where are the Charles A. Pope School of Medicine and the Joseph N. McDonnell school? Likewise merged and lost in another university, the Washington University of St. Louis; and where is the "Humboldt-Hammer" school? Passed into the College of Physicians and Surgeons of St. Louis and the new regular changed from eclectic simply bears the name "American." Why should it not have been rechristened with an eminent American medical name? It would be well for the profession to have a care for its own if it would have them justly esteemed by others.

There are the names of Holmes, Parker, Bowditch, and others of Boston. There are the Brown-Sequards, the Drapers,

tions from such a small number could not be of much value. This holds with reference to the vast majority of affections. In cancer about 1,600 cases are recorded, and in sarcoma 300, including all the different varieties. Here the figures may be of more value. The finding in this series of cases of carcinoma is that between 50 and 60 is the period of greatest frequency, and in regard to sarcoma that there is practically no difference between the decennial periods. Ovarian affections are found most frequently between 20 and 30. Other findings do not differ materially from those already stated. A brief definition is given of each disease, and some general deductions are made aside from the figures. The book will be of interest for reference by workers in any particular disease or branch of medicine.

THE DEVELOPMENT OF PUBLIC CHARITIES AND CORRECTION IN THE STATE OF INDIANA. Paper. Pp. 132, with illustrations. Indianapolis: Board of State Charities, State House, 1792-1910.

Indiana is recognized as being well in the forefront of the states in the conduct of its penal, correctional, and eleemosynary institutions. This pamphlet of 132 pages on the history, development, aims, and purposes, together with statistics of the work of the seventeen charitable and correctional institutions in the state, makes an interesting document. Each of the institutions is described and illustrated with half-tone pictures, the plans of many of the institutions being given. A history of the legislation creating each one, its purpose and the manner of conducting it, is given, and the results of child-saving work, of the truancy law, the indeterminate sentence law, county and township charities, the work among the insane, the epileptic and the feeble-minded, are all set out in statistical and graphic manner. The pamphlet has a table of contents and an index and is an interesting contribution to sociologic work.

TWENTY-FIRST ANNUAL REPORT OF THE DIRECTOR OF THE PSYCHIATRIC INSTITUTE, 1908-1909. To the State Commission in Lunacy, State of New York [Adolf Meyer, Director, Pathological Institute, Ward's Island, New York]. Paper. Pp. 131. 1910.

This report gives a synopsis of the courses of instruction and observation laid out at the Psychiatric Institute for the benefit of the physicians of the other state institutions, covering periods of one week to three months. It also describes the efforts to establish standards so that the information might be used for statistical purposes, and gives a report of the clinical work, with descriptions or histories of cases of the various clinical classifications, the histologic findings in the brain and cord of those cases available for such examination, whose histories are given, and of other specimens sent for examination from other states, with an analysis of the cases by groups and subgroups. The whole report makes an interesting and valuable study for reference by the alienist or psychiatrist.

MONOGRAPHS ON MEDICAL AND ALLIED SUBJECTS. Published by the Rockefeller Institute for Medical Research. No. 1. Issued June 30, 1910. Paper. Pp. 130, with illustrations. New York: 66th St. and Ave. A, 1910.

This is the first of a series of monographs on medical and allied subjects to be issued at irregular intervals by Rockefeller Institute for Medical Research. It contains five papers, profusely illustrated with microphotographs and other plates, one of them colored. Some of the papers are on tumors and experiments by Flexner and Jobling in transplanting tumors in the rat, mouse, and monkey; and one is on some experiments by Maud L. Menten with radium bromid on carcinoma in the rat. The whole representing work done in the Rockefeller Institute.

CONGENITAL DISLOCATION OF THE HIP. By J. Jackson Clarke, F.R.C.S., Senior Surgeon to the Hampstead and North-West London Hospital. Cloth. Price. \$1.50 net. Pp. 92, with 55 illustrations. New York: Paul B. Hoeber, 69 East 59th St., 1910.

The author began his work in 1903 after Lorenz's visit to London, and he reports 40 cases. Except for the report of these cases the book contains little that might not have been heard and observed at a clinical lecture by Lorenz eight years ago, with such additions as a surgeon, who had operated on only a few cases and had not yet "found himself," might be expected to set down when writing a book. In a word the book contains nothing new of any value and much that is ancient, unnecessary and misleading.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

The Economic Value of Health.

In the twenty-first annual report of the State Board of Health of Florida, the president of the board in his letter of transmissal to the governor emphasizes the value of the State Board of Health and its work to the people of the state, as a business asset. The contrast between present and previous conditions is admirably drawn. The fact that the president of the board is a layman adds interest to the letter.

"It is a well known fact that prior to the great epidemic of yellow fever in 1888 the increase in the state's population from immigration was almost inappreciable compared with the gain since the period mentioned. It is within the memory of even our younger people that as each summer came there was talk of yellow fever, its probability of occurrence and the point where it would first make its appearance. This periodic agitation of a subject which vitally interested not only the physical life of the citizen, but his business existence as well, brought about conditions which yearly disturbed home comfort and retarded the coming of people into the state, besides restricting the investment of capital, so necessary to develop many important industries and avenues of commerce which held out flattering returns. People were scared, and naturally so in placing their money where health conditions were so uncertain and where an epidemic of yellow fever depressed values to a degree that it would take years of exemption to recover from. Then again, the diversity of opinion as to management when disasters of this character did occur and the inconvenience and annoyance to travel and commerce which arose on each county line, demoralized both the citizen and business, so that, at almost every path and by-road in the state, the traveller, whether from an infected portion of the state or not, was harassed by guards, who in the majority of instances were ignorant of the essential requirements of their positions, and who rendered really no practical service in restricting the spread of a contagion, but did inflict, by their orders and insistence on them, many indignities on women and children, and, in several instances, serious impairment to health.

"Compare the conditions existing in the state in 1888 with an epidemic of yellow fever in Jacksonville, and the conditions which prevailed in 1905 with an epidemic of the same disease in Pensacola, Fla. In the former instance, panic prevailed; every man's hand was raised against his neighbor of adjoining counties, under a false supposition of protection against an unseen enemy; commerce was strangled and stagnation of business consequently followed. In 1905—in the latter instance—without a ten-mile area around Pensacola, travel within the state was undisturbed. Business followed its usual methods and there was no panic, no excitement, no hysteria of even those most skeptical of the ability of the State Board of Health to cope with the situation and confine the disease to one point in the state, where it had unfortunately gained entrance, which occurred, however, through no lack of careful supervision or attention. Even when a case of yellow fever occurred in Tampa by direct importation from New Orleans, at a period in the history of that epidemic when the disease was not known to exist in New Orleans, there was no uneasiness felt at Tampa, and there was not for one minute a suspension of travel or commercial relations with the other portions of the state....

"Is it unreasonable, therefore, to argue or to maintain that the part played in the wonderful development of Florida since 1888 has been due very largely to a confidence in the safety of living in the state, which confidence has been inspired by the work which the State Board of Health has done along health lines and which it is still earnestly engaged in? Would people come to the state from the west, northwest, northeast, and middle west, buy property, institute new industries, and settle permanently among us, if they did not feel that their lives were being guarded against disease, and their accumulations of property interests were being protected against needless fright and senseless panic? I do not say nor pretend to assert that the State Board of Health has been the only factor in the strides which Florida has made towards financial development in the past twenty years, but I do maintain without fear of successful contradiction, that the board has contributed a large share to the success which the state now

enjoys, and it will be recognized in the future, if not already so considered, as an investment on the part of the people which should be allowed the greatest latitude of administration."

“Antivivisection Mush”

A recent criticism of the Bureau of Animal Industry at Washington is commented on as follows by the Natchez (Miss.) News, under the above heading:

“Sentimental antivivisectionists of Washington are raising a howl because they have discovered that the Bureau of Animal Industry and other government institutions in the capital have done some vivisection work on dogs and threaten prosecution; they also threaten to have a law passed prohibiting vivisection under any circumstances in the District of Columbia, it being permissible now for medical or scientific purposes. The great trouble with many self styled reformers is that they make themselves ridiculous. Whoever will make the least effort can learn that much of the progress of modern medicine and biologic science is due to vivisection; some of the most important discoveries are due to wilful destruction of lower life.

“Theoretically, the humblest insect is entitled to life and the pursuit of happiness as the greatest human genius; but it must be carefully remembered that man has reached his high stage only on account of his fitness to survive, and on account of the fact that to gain his own ends he regards all other forms of life as subservient to his purpose. Animals are killed for their flesh and vivisection is practiced because in that manner only can many processes of life, of health or of disease, be determined. That unnecessary cruelty should be forbidden is admitted by all, but from the human point of view there is no cruelty in vivisection, if by practicing it on a dog or on a guinea-pig, something of importance can be learned. And a new discovery is of the utmost importance, whether its applicability be immediate or in the distant future. Every scientific discovery sooner or later will demonstrate its utility to mankind. From a purely doctrinal point of view it is cruelty to the dog to submit him to vivisection, but his feelings in the matter should be consulted no more than the feelings of animals are consulted when they are slaughtered for food.

“Such reformers as the antivivisectionists can find much suffering among human beings to exercise their kindness and charity on. Even in civilized countries human beings suffer pain, hunger, humiliation and other misfortunes that cry for relief and for whom relief could be found; nearly all the suffering caused in vivisection is caused for the benefit of mankind, and man is and should be the first consideration of man.”

State Boards of Registration

COMING EXAMINATIONS

IOWA: Capitol Building, Des Moines, September 12-14. Sec., Dr. Guilford H. Sumner, State House.
MASSACHUSETTS: State House, Boston, September 13-15. Sec., Dr. Edwin B. Harvey.
MISSOURI: Capitol Building, Jefferson City, September 20-22. Sec., Dr. Frank B. Miller.
NEW YORK: Albany, September 27-30. Chief of Examinations Division, Dr. Charles F. Wheelock.

Georgia May Reports

Dr. I. H. Goss, secretary of the Georgia Board of Medical Examiners, reports the written examinations held at Atlanta, May 4-7 and at Augusta, May 2-3, 1910. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 80.
At the examination held at Atlanta, the total number of candidates examined was 113 of whom 108 passed and 5 failed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Howard University		(1909)	84.
Atlanta College of Physicians and Surgeons		(1910)	80, 81, 81.5, 82, 82.5, 83, 83, 84, 84, 84, 84, 84.5, 85, 85, 85.5, 85.5, 86, 86, 86, 86, 86.5, 87, 87, 87.5, 87.5, 87.5, 88, 88,

88, 88, 88, 88, 88, 88, 88, 88, 88.5, 88.5, 89, 89, 89.5, 89.5, 90.5, 91, 92.5, 95, 95.5.		
Atlanta School of Medicine, (1910)	80, 82, 83.5, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85.5, 85.5, 86, 86, 86, 86, 87, 87, 87, 87, 87, 88.5, 89, 90, 90, 90, 91, 91, 91, 91.5, 92.5, 95.	
Albany Medical College	(1899)	93.5
Leonard School of Medicine	(1908)	81.5
University of Tennessee	(1908) 86; (1910)	92.
University of the South	(1909)	83.
Meharry Medical College (1906)	82; (1908) 85, 87; (1910) 80, 81, 83, 83, 85.5, 86, 86, 89, 89.5, 89.5.	
Medical College of Virginia	(1869)	87.

FAILED

Leonard School of Medicine	(1905)	76.
Chattanooga Medical College	(1910)	78.
Meharry Medical College	(1910)	77, 79.
Knoxville Medical College	(1908)	74.5

At the examination held at Augusta, the total number of candidates examined was 14 all of whom passed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
University of Georgia, (1910)	84, 84.5, 84.5, 85, 86.5, 86.5, 87, 87.5, 88, 90, 90.5, 92, 92.		
Medical College of South Carolina	(1906)		88.

LICENSED THROUGH RECIPROCITY SINCE MAY 1, 1910

College.	Year Grad.	Reciprocity with.
University of Missouri	(1895)	Virginia
University of Pennsylvania	(1887)	Florida
Memphis Hospital Medical College	(1910)	Tennessee
University of Nashville	(1908) (1910)	Tennessee
Meharry Medical College	(1909) (1910)	Tennessee
University of Virginia	(1907)	Virginia

The following questions were asked:

ANATOMY

1. Name bones of tarsus. What bones form internal malleolus? External? What bones comprise the pelvis? Name divisions of vertebral column, and give distinguishing characteristics of cervical vertebra. 2. What muscles aid in mastication? In deglutition? Give origin, nerve and arterial supply of masseter muscles. What muscles compose quadriceps extensor femoris? Give origin and insertion of quadriceps extensor femoris. 3. Name divisions of alimentary canal. Name principal glands found in small intestine. What is average size of stomach? Give blood supply. Name abdominal viscera wholly covered by peritonium? Partially covered? 4. Name and illustrate by diagram the regions of abdomen; where in the topography of abdomen is vermiform appendix. Describe briefly Poupart's ligament. 5. Give origin of left common carotid artery. Name branches of left external carotid. Name twelve pair nerves of special sense. Give origin and cranial exit of pneumogastric nerve. Name the three most important branches.

PHYSIOLOGY

1. Define reflex action and give example. 2. Describe the functions of the kidneys. 3. Give the normal constituents of the urine. 4. What is meant by digestion? 5. Name the secretions of the alimentary canal, their reactions and functions.

CHEMISTRY

1. Give test for albumin and sugar in urine. 2. Describe chemical test for blood. 3. Is organic material admixed to water always deleterious, and when is it? 4. Define an alkaloid, and name three principal ones used in medicine. 5. How are solutions, suspected to contain arsenic, to be tested?

MATERIA MEDICA AND THERAPEUTICS

1. Ergot: Its physiologic action. Its principal uses. 2. Cocain hydrochlorid: Its physiologic action. Its principal uses. 3. Chloroform: Define it. When is it indicated as an anesthetic? 4. Ether: Define it. State the conditions that render it preferable as anesthetic. 5. Define a mydriatic, also a myotic. Give examples of each with dose for local application in each case.

PRACTICE OF MEDICINE

Influenza: Definition. Etiology. Bacteriology. Symptoms. Types of the disease: 1. Respiratory. 2. Nervous form. 3. Gastro-intestinal form. 4. Febrile form. Diagnosis. Treatment. Jaundice: Definition: 1. Obstructive jaundice, causes of. General symptoms of obstructive jaundice. 2. Toxicemic jaundice. Causes. Treatment in each group. Leukocytosis: In what diseases does it occur and in what diseases is it absent. Appendicitis: Give the symptoms of. Colic: Renal and hepatic, make a differential diagnosis between.

SURGERY

1. Define abscess? Aneurism? With what condition may aneurism be confounded? Make briefly a diagnosis of coma from injury, apoplexy, uremia, opium poisoning, and alcoholic intoxication. 2. Define peritonitis. State two or more ways in which the peritoneum may be invaded by bacteria. What are the contraindications?

tions respectively to the use of the three principal anesthetics—nitrous oxid, ether, chloroform. 3. What is dislocation? Fracture? Give differential diagnosis between fracture and dislocation. Describe Colles' fracture. Outline treatment of same. 4. What is hemorrhage? How would you arrest epistaxis. Describe operation for ligation of subclavian artery in its third portion. What arteries require ligating in amputation, at middle third of leg? 5. Describe complete indirect inguinal hernia. Give symptoms of strangulation, methods of reduction, and operation if strangulation exists. Describe an approved operation for the radical cure of oblique inguinal hernia.

GYNECOLOGY

1. Give causes and treatment of uterine hemorrhage. 2. Under what conditions would you prefer vaginal to abdominal hysterectomy. 3. Describe technic of vaginal hysterectomy. 4. Give differential diagnosis between fluids in abdominal cavity and ovarian cysts. 5. Describe ectopic pregnancy, varieties, and operation for same.

OBSTETRICS

1. Would the coincidence of diabetes with pregnancy have a harmful effect on the latter? What would you do for such patient? 2. Give treatment of a subinvolved uterus. 3. Differentiate between puerperal and true puerperal infection and give treatment of each. 4. How would you distinguish between an epileptic and an eclamptic convulsion? 5. What are the indications for the use of forceps?

PATHOLOGY

1. Give the pathology in simple lobar pneumonia. 2. Give the pathology of pellagra with etiology. 3. Give the pathology in hookworm disease. 4. Describe the pathologic conditions in meningitis. 5. (a) How is fibrous tissue formed? (b) What tumors are composed largely of fibrous tissue, and in what part of the body do they usually occur?

Kansas June Report

Dr. F. P. Hatfield, former secretary of the Kansas Board of Medical Registration and Examination, reports the written examination held at Kansas City, June 14-16, 1910. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 65 of whom 54 passed and 11 failed. Twenty-three reciprocal licenses have been issued since January 1, 1910. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Howard University, Washington, D. C.....	(1907)	81.	
Northwestern University Medical School.....	(1910)	78, 84.	
Kansas Medical College. (1910) 80, 81, 81, 81, 82, 82, 83, 83, 85, 86, 86, 86.			
University of Kansas. (1910) 80, 80, 80, 80, 81, 81, 82, 83, 83, 83, 84, 84, 85, 85, 86, 87, 87, 87.			
University Medical College, Kansas City, (1910) 75, 77, 78, 80, 81, 81, 82, 84, 85, 85, 87.			
Kansas City Hahnemann Medical College	(1910)	82, 85, 85.	
Eclectic Medical University, Kansas City.....	(1910)	83.	
Barnes Medical College	(1910)	76, 78.	
St. Louis College of Physicians and Surgeons.....	(1909)	75.	
Columbia University, College of Physicians and Surgeons	(1910)	84.	
Bellevue Hospital Medical College	(1883)	82.	
FAILED			
University of Kansas	(1900)	72.	
Central Medical College, St. Joseph.....	(1896)	61.	
Eclectic Medical University, Kansas City.....	(1910)	67, 71.	
University Medical College, Kansas City.....	(1910)	68, 73.	
Ensforth Medical College, St. Joseph.....	(1909)	42.	
St. Louis University	(1907)	60.	
Kansas City Hahnemann Medical College.....	(1910)	60.	
Bellevue Hospital Medical College.....	(1878)	67.	
Eclectic Medical College, Cincinnati.....	(1910)	58.	

LICENSED THROUGH RECIPROCITY

College.	Year Grad.	Reciprocity with.
Hering Medical College, Chicago.....	(1906)	Illinois
Keokuk Medical College, College of Physicians and Surgeons	(1903)	Iowa
Iowa College of Physicians and Surgeons.....	(1884)	Iowa
Central College of Physicians and Surgeons, Indianapolis	(1902)	Nebraska
University of Louisville, (1895) Kentucky; (1896)		Illinois
Baltimore Medical College	(1899)	West Virginia
College of Physicians and Surgeons, Baltimore.....	(1903)	West Virginia; (1909)
University of Michigan, Department of Medicine and Surgery	(1892)	Oklahoma
Barnes Medical College	(1903)	Iowa
Eclectic Medical University, Kansas City.....	(3, 1910)	Illinois
University Medical College, Kansas City.....	(3, 1910)	Arkansas
American Medical College, St. Louis.....	(1879)	Arkansas
Eclectic Medical College, Cincinnati.....	(1881)	Ohio
Chattanooga Medical College	(1906)	Indiana
Trinity Medical College, Toronto, Ontario.....	(1897)	West Virginia; Ontario

Medicolegal

Patient May Not Testify in Injury Case to What Physicians Told Him, But May Describe Tests and Treatment to Recover Damages for Pain Caused by Same—Duty of Injured Person

The Court of Appeals of Kentucky says, in *Louisville & Nashville Railroad Co. vs. Lynch* (126 S. W. R., 362), a personal injury case brought by the latter party, that it was violative of one of the fundamental principles or rules governing the introduction of evidence to permit the plaintiff to testify as to what his physicians had told him. If he wanted the benefit of their testimony, he was entitled to have it either in the shape of direct evidence, given by the physicians before the jury, or he might have taken their depositions. By pursuing either of these methods he could have obtained the benefit of the physicians' investigation of his case and their testimony as to the nature and extent of his injury; but in no event was he entitled to have given to the jury, as substantive evidence, what the physicians said to him relative thereto.

While, however, it was not proper for the plaintiff to testify to what the physicians told him concerning his case, he would necessarily have to describe somewhat in detail the various tests to which he was subjected by them in their efforts to determine the extent of his injury and the probable chance of his recovery, and if this treatment or examination, made necessary in order to enable them to intelligently treat him, caused him pain and suffering, the court sees no good reason why he might not have the jury consider this as going to make up a part of the pain and suffering caused by the injury. If, through the negligence of the defendant railroad company, he was injured, then he was entitled to recover for all pain and suffering which he endured as the direct and proximate result of such injury; and, so long as the physicians employed possessed that degree of skill and proficiency in their profession usually possessed by the average practitioners in their locality, the defendant company, if primary liable, was answerable for any pain and suffering produced by them in their efforts to locate the injury and the extent thereof, even though the methods employed were not the most approved or the tests applied not the latest. He must use all reasonable means to effect his recovery, and must submit to such examination as was necessary to enable his physicians to locate the trouble and know how to treat it; and, as any pain produced by this examination was directly traceable to the negligence through the injury, it could not be dissociated from it. It not infrequently happens that the negligent or wrongful act producing the injury is followed by no immediate pain or suffering; but the treatment of the injury is attended with great pain, as in the case of gunshot wounds. When shot, the victim feels only a slight stinging sensation; but when the surgeon probes the wound to ascertain the course of the bullet, in order to determine what to do, great pain is frequently produced, all of which is directly traceable to the wrongful or negligent act—the shooting. Of course, the defendant would not be liable for suffering produced by the tortious or wrongful act of a physician not engaged in an honest effort to ascertain the seat of the patient's trouble with a view of bettering his condition if possible.

The court concludes that it was entirely proper for the plaintiff to describe the various treatments to which he was subjected so far as it was necessary for him to do so in order to properly bring before the jury the effects of such treatment on him, as to producing pain, etc. Beyond this he should not be permitted to testify concerning the treatment, but the minute descriptions of the various tests to which he was subjected and the treatment which he underwent must be left to the physicians who applied and administered same. They might go into detail in order to demonstrate, if possible, to the jury, the nature and extent of the plaintiff's injury, and the possibility or probability of his recovery.

Cases in which it was simply held that the defendant was not liable for any tortious or wrongful act of the physician where it had exercised reasonable care to select one of average skill and ability in his profession did not militate against

the position taken in this case that, the pain and suffering produced being only such as naturally flowed from the treatment regarded as necessary, it was proper for the jury to consider same.

When Ordering of Physical Examination is not Authorized

The First Appellate Division of the Supreme Court of New York says that the case, *Smyth vs. Lichtenstein* (122 N. Y. S., 74), was brought to recover damages for alleged indignities and assault, and that the burden of the complaint consisted of the indignities to which the plaintiff alleged she was subjected. The defendant procured an order of court requiring the plaintiff to submit to a physical examination as an adverse witness. No necessity for a physical examination was shown. It was apparent from the moving papers that the purpose of the defendant was, not to obtain evidence of the physical injuries alleged to have been suffered as the result of his assault, but to inquire into the previous history and physical condition of the plaintiff. If an examination for such purpose could ever be permitted, the affidavits on which it was asked were insufficient in this case. The order for the examination in this case did not come fairly within the intent of section 273 of the New York Code of Civil Procedure, which provides that in actions to recover damages for personal injuries the defendant is entitled to an order requiring the plaintiff to submit to a physical examination by one or more physicians or surgeons to be designated by the court or judge, where the defendant shall present to the court or judge satisfactory evidence that he is ignorant of the nature and extent of the injuries complained of. But a dissenting opinion of two members of the court suggests that a court has no right to refuse to enforce this mandatory provision because it thinks that the purpose of the defendant is not to obtain evidence of physical injuries alleged to have been suffered as the result of an assault, but to inquire into the previous history and physical condition of the plaintiff.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

August 20

- 1 *The Influence of the Use of the Automobile on the Upper Air Passages. D. B. Delevan, New York.
- 2 First Aid to the Insane, and Psychopathic Wards. A. W. Ferris, New York.
- 3 *Is Mercury A Specific in Pulmonary Tuberculosis? W. N. Beggs, Denver.
- 4 Hyperchlorhydria and Abdominal and Pelvic Surgery. J. H. Carstens, Detroit.
- 5 *Is Koch's Bacillus the Cause of Cancer? T. G. McConkey, San Francisco.
- 6 The Pathology of Multiple Adenomata of the Rectum. J. M. Lynch, New York.

1. Influence of the Use of the Automobile on the Upper Air Passages.—Delevan claims that theoretically respiratory diseases should be much increased by motoring, but that practically they are not. However, acute catarrhal states of the ears and air passages and advanced tuberculosis with fever, should contraindicate motoring, which properly used in suitable cases is a valuable therapeutic agent. We need good roads, well-paved streets free from dust, and enforcement of laws against smoke and fumes, such as are found in all European cities.

3. Mercury in Tuberculosis.—Beggs does not consider mercury a specific for pulmonary tuberculosis. It is valuable in certain cases, especially when there has been a specific taint. In most cases improvement is subjective, with very slow improvement in the physical signs. When syphilis is not present, he believes that its value is due to the tonic effects of the drug, its beneficial effect on digestion or the psychic effect of the treatment.

5. Koch's Bacillus Cause of Cancer.—McConkey states his belief that the tubercle bacillus is the cause of cancer. It causes normal tissue cells to take on the habit of proliferation, and supplies the missing factor in the etiology of cancer. In the young or robust this cell proliferation is checked

by the defensive reaction of the body, and the tubercle is formed by encapsulation. But if the defense reaction is delayed or prevented, as in later life, encapsulation not taking place, the proliferation of cells goes on to the formation of a new growth. The habit of growth in the cells replaces the habit of work.

New York Medical Journal

August 20

- 7 Lessons for the Athlete in the Jeffries-Johnson Battle. G. F. Lydston, Chicago.
- 8 Atony of the Stomach. J. W. Weinstein, New York.
- 9 *Existing Theories and the Presentation of a New Theory of the Etiology of Achylia Gastrica. G. E. Barnes, Herkimer, N. Y.
- 10 *Blood-Pressure and Urinalysis in Chronic Nephritis. H. B. Mills, Philadelphia.
- 11 Ophthalmic Studies in Chronic Interstitial Nephritis. L. C. Peter, Philadelphia.
- 12 Resistance of the Spirochæta Lymphatica to Antiformin. F. Proescher, Pittsburg.
- 13 Vincent's Angina. A. M. MacWhinnie, Seattle, Wash.
- 14 Vitiligo with a History of Heredity. E. H. Marsh, Brooklyn.
- 15 Dioxidu-amido-arsenobenzol or "606;" Ehrlich's Newest Remedy for Syphilis. S. J. Meltzer, New York.

9. Achylia Gastrica.—In Barnes' opinion, the so-called primary form of atrophy or achylia gastrica cannot be idiopathic, inherited, congenital or result from a congenital predisposition. He believes that achylia gastrica is caused by a lesion of the secretory axons of the vagus nerves, a theory which best explains, he thinks, all the chemical and microscopic conditions and all the symptoms of the disease.

10. Blood-Pressure and Urinalyses in Chronic Nephritis.—The objects of Mills' paper are: To call attention to the frequency and importance of the relationship existing between urea elimination and blood-pressure; to urge the more frequent microscopic examination of the urine in the absence of albumin; to make the urea estimation a regular procedure in urinalyses; to urge the more universal employment of the blood-pressure test in the diagnosis and treatment of disease, especially the various toxemias; to stimulate comparative studies with the view and in the hope that, on being able to determine the real value of the blood-pressure test, both singly and relatively, we may thus secure an aid to the earlier diagnosis of conditions present than would be possible by the most careful physical examination and urinalysis.

Boston Medical and Surgical Journal

August 18

- 16 The Experimental Basis for Vaccine Therapy. T. Smith, Boston.
- 17 *Importance of Determining the Potency of Digitalis Preparations. J. H. Pratt, Boston.
- 18 *The Therapeutic Use of Ascitic Fluid: A Preliminary Communication. T. Leary, and R. W. Hastings, Boston.
- 19 Medical Social Service. W. R. Woodbury, Boston.
- 20 The Meteorologic and Hygienic Aspects of the Floods in France in 1910. G. Hinsdale, Hot Springs, Va.

17. Digitalis Preparations.—Pratt examined many specimens of digitalis—both leaves and powder—and found that most of them, at least the leaves, were only slightly active or inert. He advises that only the powder, carefully tested, be used, as that is the form in which the drug retains the greatest physiologic activity.

18. Therapeutic Use of Ascitic Fluid.—Leary and Hastings state that they have had excellent results in the treatment of intractable cases of marasmus in infants by means of ascitic fluid, one ounce being injected daily for a period of varying duration. Twelve such cases are reported.

Lancet-Clinic, Cincinnati

August 6

- 21 A Medical Course in the Practice and Theory of Life-Insurance Examination as Taught in the University of Louisville. W. E. Grant, Louisville.
- 22 Preparation, Technic and Postoperative Treatment of Emergency Cases. L. G. Bowers, Dayton, O.

Kentucky Medical Journal, Bowling Green

August 1

- 23 Pellagra in Perryville. H. M. Pittman, Perryville.
- 24 A Kentucky "Lunger's" Idea of the "Bugs." H. C. Caseldine, Albuquerque, New Mex.
- 25 Management of Some Communicable Diseases. R. L. Ford, Livermore.
- 26 Infant Foods and Infant Feeding. W. A. McKenney, Falmouth.
- 27 Diagnostic Value of Abdominal Pain. A. L. Beckett, Foster.
- 28 The Tongue. C. Graham, Henderson.

- 29 Partial Inversion of the Uterus. L. G. Contri, Milton.
- 30 Osteomyelitis. J. R. Crittenden, Gordonsville.
- 31 Puerperal Eclampsia. J. J. Wakefield, Bloomfield.
- 32 Justifiable Abortions. W. L. Heizer, New Haven.

Illinois Medical Journal, Springfield

August

- 33 Pellagra: With Special Reference to Etiology and Diagnosis. G. W. Webster, Chicago.
- 34 *Diabetic Obliter Dicta. S. T. Robinson, Edwardsville.
- 35 Borderline Psychoneuroses. E. L. Crouch, Jacksonville.
- 36 *Prevention and Treatment of Insanity. E. Cohn, Anna.
- 37 *Study of Mental Disorders. H. D. Singer, Kankakee.
- 38 Insanity. S. Dods, Cairo.
- 39 The Nursing Spirit. W. C. Graves.
- 40 Splenectomy in Relation to Union in Fractures. A. B. Kanel, Chicago.
- 41 Fractures of the Mandible. T. L. Gilmer, Chicago.
- 42 Hydrotherapy in Acute Diseases. S. Baruch, New York.

34. Abstracted in THE JOURNAL, May 28, 1910, p. 1808.

36, 37. Abstracted in THE JOURNAL, June 4, 1910, p. 1893.

Archives of Internal Medicine, Chicago

August

- 43 *The Control of Typhoid Fever in City and Country. W. R. Stokes, and W. F. Hachtel, Baltimore.
- 44 *The Type of Infantilism in Uncinariasis. I. I. Lemann, New Orleans.
- 45 *Trophoneurotic Changes in Bones and Joints in Leprosy. F. Harbitz, Christiania, Norway.
- 46 Serotherapy in Purpura Hemorrhagica. F. M. Class, New York.
- 47 *Hodgkin's Disease and Certain Allied Conditions. H. T. Karsner, Philadelphia.
- 48 *Auscultatory Blood-Pressure Determinations. J. C. Gittings, Philadelphia.
- 49 Specificity of the Noguchi Modification of the Wassermann Reaction. D. J. Kaliski, New York.
- 50 *Experimental Conditions of Low Blood-Pressure of Non-Traumatic Origin. R. M. Pearce and A. B. Eisenbrey, New York.

43. Control of Typhoid.—The modification of Hess' medium employed by Stokes and Hachtel consists in the addition of 6 instead of 4.5 gm. of agar, and also adding 1 per cent. of lactose and 5 per cent. of glycerin. The larger quantity of agar is added, since glycerin always increases the fluidity of a medium. A most important point is to color the medium by means of a 1 per cent. solution of azolitmin powder dissolved in boiling water after the reaction has been corrected to the neutral point. This medium is then used as a plate culture for water, feces, oysters, blood-cultures and urine. In plating out stools and urine, much time is saved, as the *B. alkaligenes* forms a typical blue colony, while that of *B. typhosus* is red. Both of these colonies show the typical concentric zone. The colon bacillus is almost always small, concentrated, and forms a superficial moist red colony which bears no resemblance whatever to the much larger, spreading typhoid colony.

44. Infantilism in Uncinariasis.—Lemann reports in detail the exact study of the grade of development in a case of hookworm disease and, by contrasting it with other types of infantilism, endeavors to fix its classification. He says that the infantilism of uncinariasis has much in common with infantilism from certain other causes. On the other hand, there are some forms of arrested development with which it stands in strong contrast and with which it is likely to be confused. Such types are, for example, the achondroplastic dwarf, the mongolian idiot, the rachitic dwarf. From the achondroplastic dwarf Lemann's patient is readily distinguished by the absence of the characteristic lack of proportion between the lengths of the extremities and that of the trunk. Besides, there is no trident hand, no bowing of the long bones, no decentralization of the umbilicus, no prognathism, as there usually is in achondroplasia. The genitalia share in the retardation, while in achondroplasia they correspond in size and development to the true stage of the individual. The skiagraphs of the hookworm dwarf show none of the cartilage changes in the achondroplastic.

The hookworm dwarf has equally as little in common with the rachitic dwarf. In rickets the bone shadow is paler than normal and the medullary canal is larger, making the cancellous tissue smaller. Hence, there is a bending and bowing of the long bones. The ends of the long bones are enlarged and there is irregular cartilaginous development of the epiphyses. In addition, there is an unduly large skull, squared

and frequently "bossed." None of these features are present in the hookworm dwarf. But there is a masked cretin, the dysthyroid or hypothyroid infantile (type Brissaud) who may have had a much closer resemblance to the hookworm patient, Lemann says. In both there is a simple retardation of the development in general, involving not only the skeleton, but the genitals and the secondary sexual characteristics; in both there may be a dry skin with dry, harsh, scanty hair. But even the masked cretin, fairly intelligent, though he may be, has usually enough of the characteristics of the cretin, namely, the round full face with the thick lips, small nose and the thick skin, to distinguish him from the patient of the type described by Lemann.

45. Bones and Joints in Leprosy.—The material reported by Harbitz was obtained from patients who had suffered from leprosy for from 15 to 67 years, during most of which time they had been under observation in leprosy hospitals. There is an atrophy of the bones of the hands and feet which may proceed to such a degree that certain bones finally entirely disappear. The atrophy principally affects the most distal bones, the phalanges, metacarpals and metatarsals; it is little pronounced in the tarsus and carpus. The bones may atrophy in their entirety, though sometimes more so in the shaft, and become thin and brittle, but their shape is preserved. This variety resembles the so-called atrophy of disuse, though the bones, generally, are somewhat decreased in size. In the more characteristic form, the atrophy is concentric and chiefly involves the most peripheral parts of the phalanges, metacarpal and metatarsal bones. The distal heads of the metacarpal and metatarsal bones usually disappear, while at their base the bones preserve their usual width and thickness. The surface is generally smooth. The shortening of the metacarpal and metatarsal bones may be very considerable and most pronounced either in those on the outside or those on the inside. It may be so marked that the length is only half the normal one, or even less. The phalanges atrophy in a similar manner, and become very thin, pointed anteriorly and porous. Finally, only disconnected remnants are left, which ultimately may be entirely absorbed so that the toes become shapeless lumps without any bony framework.

In the joints various changes are also seen, on the whole, resembling those of arthritis deformans. Especially in the joints of the tarsus there is a form of chronic inflammation of the joint capsules with the picture of pronounced proliferating synovitis and serous effusion; at the same time, the articular ends show changes, such as atrophy of cartilage and bone, or proliferative alterations in the form of nodular projections, osteophytes, etc. The osseous substance, as a whole, in most cases, is the seat of marked osteoporosis. The tarsal bones become brittle and often are squeezed together to form thin plates of bone. Similar signs of chronic joint disease are seen in atrophic, leprosy hands, but less frequently and less prominently. The question arises whether this peculiar bone atrophy is specific, and directly due to leprosy neuritis, or if it can be satisfactorily explained in some other manner. Harbitz believes that there is no good reason for doubting that this bone atrophy is really of neuropathic origin, and thinks that everything seems to point to leprosy interstitial neuritis as the cause.

47. Hodgkin's Disease and Certain Allied Conditions.—The review of the clinical histories of a number of cases lead Karsner to conclude that Hodgkin's disease is a distinct pathologic entity, which may produce or be accompanied by high-grade anemia, usually of the secondary type, occasionally of pernicious type. The presence of histo-eosinophilia is not of great diagnostic significance, and surgical removal and competent examination of the involved lymph nodes may lead to an accurate diagnosis. Although tuberculosis of the lymph nodes and Hodgkin's disease may occur coincidently, tuberculous lymphadenitis may present a histologic picture somewhat confusing with that of Hodgkin's disease. The giant cells of this form of tuberculosis differ from those of Hodgkin's disease, in that the former show relatively solid nuclei, and the latter distinctly vesicular nuclei. Pending the discovery of the essential nature of the disease, it may be said

that Hodgkin's disease, a chronic granulomatous inflammatory process, may undergo transformation with assumption of malignant characters.

48. **Auscultatory Blood-Pressure Determinations.**—In 61 cases examined by Gittings the auscultatory maximum averaged 16.7 mm. higher than that determined by palpation. In 2 cases the reverse occurred, the palpatory maximum being higher than the auscultatory. In 1 case the difference was only 2 mm. and in the other 27 mm. In 41 cases diastole, as determined by auscultation, averaged 15.5 mm. lower than that determined by the visual method. In 5 cases diastole by auscultation averaged 7.7 mm. higher than that by the visual method. In 2 cases the results were equal. In 1 case diastole could not be determined by auscultation. In 11 cases diastole could not be determined by inspection. The maximum pressure being higher by the auscultatory method and the minimum being lower, it follows that the blood-pressure is greater in the auscultatory than in the visual method.

50. **Experimental Conditions of Low Blood-Pressure.**—The study of experimental conditions of low blood-pressure by Pearce and Eisenbrey has been limited, for the most part, to conditions of shock due to traumatism, thermic influences or exposure, and aside from the pharmacologic investigations of the mode of action of certain substances, such as arsenic, but few attempts to study experimentally low blood-pressure due to toxic agents have been made. The authors found that anaphylactic shock and peptone intoxication are characterized by conditions of low blood-pressure very similar to those seen in shock and collapse, and as they are produced without trauma or other factors usually concerned in the etiology of surgical shock, are of interest in the study of conditions of shock occurring in medical as contrasted with surgical practice. Both conditions are characterized by a fall in blood-pressure to a level of 20 to 30 mm. Hg, which is prolonged in anaphylactic shock, but tends to relatively rapid recovery in peptone intoxication. In both conditions there is extreme congestion of the large venous trunks of the splanchnic area with a coincident medullary anemia. The respiration is not altered, except in so far as it is affected by the anemia of the medullary centers; the heart shows no initial changes, the low pulse pressure being due apparently to the small amount of blood passing through it. Physiologic studies having for their object the determination of the mechanism by which the low pressure is caused, demonstrate that the condition is essentially a peripheral vasomotor paralysis. Pharmacologic studies indicate that the effect is on the nerve-endings rather than on the muscle. With independent cerebral transfusion the recovery from low pressure is more rapid than in the intact animal. This is true, also, when an animal is transfused by carotid anastomosis, and recovery is especially satisfactory when the transfusion is accompanied by simultaneous bleeding from the femoral vein.

Indications for treatment, therefore, appear to be (1) relief of splanchnic congestion, and (2) increase of volume of blood to the heart and medulla. Cardiac stimulants alone, or salt solution or adrenalin alone, cannot bring about a permanent improvement. According to the results, the treatment of this condition, which, for want of a better name, may be called toxic shock, is not essentially different from that employed in traumatic shock.

American Journal of Surgery, New York

August

- 51 Plea for Conservatism in Some Gynecologic Conditions. J. P. Glynn, Brooklyn.
- 52 Hemorrhoids. J. M. Lynch, New York.
- 53 Fractures of the Spine. C. Sawyer, Marion, Ohio.
- 54 Local Anesthesia. A. E. Hertzler, Kansas City.
- 55 The Open-Air Treatment of Burns. D. St. John, Hackensack, N. J.
- 56 Rapid Synchronous Double Amputations: Eight Cases with Seven Recoveries. Cuddeback, Port Jervis, N. Y.
- 57 Cholelithiasis in a Patient Twenty-one years of Age. A. E. Sellenings, New York.

American Medicine, New York

July

- 58 *Sterilization for the Criminal Unfit. F. W. Robertson, New York City.
- 59 The Valley of the Shadow of Death—Significance of Mortality Statistics. G. M. Gould, Ithaca, N. Y.

- 60 Recent War Manoeuvres in Massachusetts from a Medical Officer's Standpoint. C. J. Colles, New York City.
- 61 Hypertrichosis or Hirsutis. A. C. Geyser, New York.

58. Robertson urgently advocates the performance of vasectomy on such individuals as are deemed unfit to propagate.

American Journal of Medical Sciences, Philadelphia

August

- 62 *Trichinosis. W. G. Thompson, New York.
- 63 *An Epidemic of Trichinosis. H. Albert, Iowa City.
- 64 Intestinal Diverticula. J. A. Hartwell and R. L. Cecil, New York.
- 65 *Skin Rashes in Typhoid. J. Phillips, Cleveland.
- 66 Extensive Sarcoma of the Heart Involving the Bundle of His. C. F. Martin and O. Klotz, Montreal.
- 67 *Rheumatic Fever and the Erythema Group of Skin Diseases. O. M. Schloss, New York.
- 68 Acquired Hemolytic Ictero-Anemia. W. M. Barton, Washington, D. C.
- 69 *Typhoid Bacillus-Carriers: Their Relation to Public Health. J. P. Simonds, Indianapolis.
- 70 *Chronic Nephritides due to Acute Systemic Infection. H. Stern, New York.
- 71 Pernicious Anemia. A. McPhedran, Toronto.
- 72 Diagnostic Puncture in Tuberculous Abscess. J. K. Young, Philadelphia.
- 73 Primary Tumor of the Velum: Marked Compression of the Fourth Ventricle. H. Brooks, New York.

62. **Trichinosis.**—According to Thompson, there should be no difficulty in determining promptly a correct diagnosis of trichinosis based on the observation of the following symptoms:

1. Acute or vomiting and abdominal cramps.
2. A high invariably present; usually above 30 per cent. much higher—even above 80 per cent.
3. A high grade of temperature often reaching 104 F. or more, and lasting, in lessening degree, for from 2 to 6 weeks.
4. Puffiness of the eyelids and face, with pains in the eyes occurring in one-fourth of the cases.
5. Dyspnea and diaphragmatic breathing occurring without cyanosis in about one-fourth of the cases.
6. The generalized muscle pains, cramps, soreness, and prostration, causing sometimes deceptive apparent immobility.
7. The sudden occurrence of symmetrical circumscribed corneal hemorrhages in a patient whose blood vessels are not degenerated, should also give rise to a suspicion of trichinosis.

63. **An Epidemic of Trichinosis.**—The infection in the cases reported by Albert occurred from eating boiled ham in a club and in a restaurant. The ham in all cases was obtained from the same packing house, and represented meat which had been inspected. Ten of the cases occurred among students at one boarding club, 3 were young women students who, in company with 3 others, partook of ham sandwiches at a local restaurant, and 1 was a young man (not a student) who obtained ham at the same place. Most of the cases were diagnosed as trichinosis very soon after the beginning of the symptoms. The occurrence of so many cases among the members of the boarding house, the eating of boiled ham, the finding of trichinae in the ham, together with the characteristic symptoms, made the diagnosis comparatively easy. Some of the cases were considered typhoid, one as rheumatism, and one as disease of the eyes, until the diagnosis became very evident, as determined by an examination of the blood. In no case was a positive Widal reaction obtained. A study of the epidemic reveals two features of special significance—the thermal death point in trichinae, and the value of eosinophilia in the diagnosis of trichinosis. A temperature of from 170 to 200 F., maintained for from 1 to 6 or more hours, depending on the size of the ham, no doubt destroys the trichinae in the vast majority of cases. Eosinophilia occurs in practically every case of trichinae infection, varying ordinarily from 10 to 60 per cent. The highest percentage reported is 86. Eosinophilia makes its appearance with the beginning of the acute muscular symptoms from the seventh to the twelfth day after infection. It is at its highest at the height of the acute muscular symptoms, which is, ordinarily, during the second or third week after infection. After this time it gradually disappears, so that at the end of the second or third month there is usually no increase in the number of these cells. The total leukocyte count is usually, but not invariably, increased in trichinae infection. The number of neutrophils is relatively, and sometimes absolutely, diminished during the period of eosinophilia.

65. **Skin Rashes in Typhoid.**—Phillips' observations are based on a review of the literature, and on a study of 1,230 cases of typhoid. Herpes was observed in 12 cases. In 8 it

appeared on the lips during the first week of the disease. In the other 4 cases the hepetic eruption appeared late in the course of typhoid and in various regions of the body. Urticaria was present in 21 cases. In some the urticarial eruption developed as a few scattered wheals on the chest or abdomen, preceding the appearance of rose spots; in other cases it appeared later in the disease. A miliary eruption of sudamina was a very frequent occurrence in the third or fourth week of typhoid, when sweating is profuse. Extensive desquamation of the skin was noted in 83 patients; 7 showed erythema; in 1 it was of the type of erythema multiforme; in 6 purpura was noted; in 4 patients a pemphigoid eruption was present. Two cases of erysipelas occurred in this series; there were 12 cases of bedsores. Under the heading of septic conditions of the skin there were noted in this series 45 cases of furunculosis, 2 of carbuncle, 5 of onychia, 9 of abscess, 1 case of impetigo, and 1 of infected sebaceous cyst of the head. Striae patellares were noted in 2 cases, one in a woman, aged 42 years, who, when 15 years old, had been afflicted with a severe, prolonged typhoid.

67. **Rheumatic Fever and Erythema.**—The cases recorded by Schloss, examples of the erythema group of skin diseases, occurred in rheumatic subjects or in association with rheumatic fever:

1. Rheumatic fever, purpura; urticaria, angioneurotic edema; erythema simplex; recovery.
2. Rheumatic fever; erythema nodosum; purpura, urticaria; erythema exudativum; intestinal hemorrhage; pericarditis; death on the twenty-first day of the disease.
3. Follicular tonsillitis; erythema multiforme; urticaria; colic; recovery.
4. Tonsillitis; urticaria; erythema nodosum; period of improvement with the occurrence of angioneurotic edema; sudden onset of pericarditis; death.

69. **Typhoid Bacillus-Carriers.**—Simonds believes that there is ample evidence for considering the danger of the spread of typhoid fever by chronic bacillus-carriers as worthy of the attention of health officers; and that epidemics caused by bacillus-carriers are characterized by the occurrence of small groups of cases at intervals of a few months in the immediate vicinity of the carrier, or in the territory supplied by some food product handled by him. The most practical way of reducing the danger to the public from these individuals is by excluding them from work that brings them in contact with food products.

70. **Chronic Nephritides.**—The records of the last 200 cases of chronic nephritis that have come under Stern's observation, give the history of one or more acute infectious diseases at some period during the life of the patients in 192 instances. Among these an acute renal involvement had been positively set up in at least 121 cases. Moreover, the histories following the attack of the infectious disease in 56 or 58 of the remaining cases strongly point to the occurrence of an acute nephritic process. (Among these should be included 4 cases of tuberculosis, 5 of syphilis and 1 of chronic malaria.) Ignoring, however, all the unconfirmed instances, it was found that renal involvement had existed in 62.5 per cent. of the patients who had been acutely infected. The frequency of renal involvement after the various infectious diseases was as follows: Scarlet fever, 38 cases; diphtheria, 35; influenza, 16; pneumonia, 12; measles, 12; typhoid, 6; rheumatic fever, 1; and erysipelas, 1. Of the 200 quoted instances of chronic nephritis, 156 occurred in men and 44 in women. The age of the youngest individual was 8, of the eldest, 64 years. The 121 cases of chronic nephritis furnishing a positive history of acute renal involvement during or after an infectious disease, had ensued in 97 men and 24 women. The ages varied between 8 and 49 years. The time which had elapsed since the occurrence of the acute nephritic state amounted to from 10 months to 26 years. Stern believes we are justified in assuming that kidneys, acutely infected at one time, are thereafter possessed of a lowered degree of resistance in many, and of a diminished functional activity in some of the instances.

Journal of Cutaneous Diseases, New York

July

- 74 Sporotrichosis in Man. J. N. Hyde and D. J. Davis, Chicago.
- 75 Therapeutic Use of Refrigeration, Particularly with Solid Carbon Dioxid. W. A. Pusy, Chicago.

New York State Journal of Medicine, New York

August

- 76 of Its Varied Origin and Significance. Brooklyn.
- 77 Diet and Feces Examinations. Their Medical Work. A. Bassler, New York.
- 78 H. Greene, Poughkeepsie.
- 79 Exaggerated Fear of the Hospital and Operations. A. H. Traver, Albany.
- 80 Abnormalities of the Nose and Throat in Relation to Catarrhal Deafness and Tinnitus. H. Hays, New York.
- 81 Stretching of the Sciatic Nerve. E. M. Foote, New York.
- 82 Laryngeal Tuberculosis. A. H. Lavigne, Saranac Lake.
- 83 Suppurative Appendicitis with Complete Sloughing of Appendix and Fecal Discharge Through Wound for Ten Weeks. G. F. Blauvelt, Nyack.
- 84 Stuttering. E. W. Scripture, New York.
- 85 Gas Poisoning. R. W. Van Dyke, Malone.

77. Abstracted in THE JOURNAL, March 5, 1910, p. 815.

81. **Stretching the Sciatic Nerve.**—Instead of the usual longitudinal incision, Foote recommends a transverse incision made at the lower edge of the gluteus muscle, and only two inches in length. Division of the deep fascia—which is here very thin—exposes the transverse lower edge of the gluteus, and the longitudinal outer edge of the biceps muscle. In the angle made by them, the sciatic is readily exposed by a little blunt dissection and brought into view on the finger. The nerve should be stretched by repeated steady pulls on it, until it is plainly elongated. The force exerted should never exceed 50 pounds. An easy way to estimate this is for the surgeon to stand on a small platform scales, while making the traction on the nerve.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

August

- 86 Cancer of the Uterus. I. Levin, New York.
- 87 What May we not Tell the Community Regarding Cancer? E. C. Savidge, New York.
- 88 Postoperative Treatment of Abdominal Section for Pelvic Disease: Special Reference to Early Rising and the Use of Eserin. B. H. Wells, New York.
- 89 Present Status of Obstetric Education in Europe and America. F. B. Cragin, J. C. Edgar, New York; C. M. Green, Boston; E. P. Davis, B. C. Hirst, Philadelphia; J. W. Williams, Baltimore, and J. C. Webster, Chicago.
- 90 Cardiac Lesion Complicating Pregnancy and Labor. E. Sothoron, Washington, D. C.
- 91 Intussusception. H. J. Morganthaler, Brooklyn.
- 92 Etappen Treatment of Bow-legs and Knock-knees. C. R. Koppalar, New York.
- 93 Club-Foot and Manipulative Treatment of the Congenital Type. R. G. Moore, New York City.
- 94 The Complications and Sequelae of Diphtheria in Children. J. S. Wall, Washington, D. C.
- 95 Tolerance of Quinin by Young Children with Malarial Diseases. S. S. Adams, Washington, D. C.
- 96 Fissure-in-Ano in Children. M. L. Bodkin, Brooklyn.
- 97 Cholesteatoma: Case in which the Disease Itself Had Done Almost a Complete Radical Mastoid Operation. J. A. MacIsaac, New York.

88, 89. Abstracted in THE JOURNAL, June 11, 1910, p. 1994.

Journal Michigan State Medical Society, Battle Creek

August

- 98 Occurrence of *Bacillus Fusiformis* in Membranous Affections of the Throat—Vincent's Angina. M. I. Holm, Lansing.
- 99 Transitory Insanity and Its Abuses. C. W. Hitchcock, Detroit.
- 100 Thrombophlebitis: Its Relation to Phlegmasia Alba Dolens. M. B. Roberts, Hancock.
- 101 Present Status of Thyroid Surgery. H. D. Purdum, Baltimore.
- 102 Subphrenic Abscess. F. B. Walker, Detroit.

98. **Vincent's Angina.**—The cases of Vincent's angina reported by Holm were gathered during 1908 and occurred among 265 cases of suspected diphtheria, examined at the laboratory of the Michigan State Board of Health. In all the cases separate examinations were made from swabs and cultures on fresh Loeffler serum. In most of the cases which had been diagnosed as diphtheria on clinical grounds, 2 or more swabs were examined. In no case, however, examined for diagnosis, has a negative finding been followed by a positive. *B. diphtheriae* was recorded whenever present, regardless of the relative number; other organisms were not recorded, except when proportionately numerous, and then only the predominating organism was mentioned. *B. fusiformis* was recorded only when found by direct smear from the swab to be more numerous than any other.

The total number of cases examined for diagnosis was 265; showing *B. diphtheriae*, 118; *B. fusiformis*, 73. These 73

cases occurred in 33 males and 40 females. The lowest age given was 2 years and the highest 45, the average being 118 years. A membrane was described in all but 4 cases, involving both tonsils 38, one tonsil 31, and extending to adjacent structures 15. The color of the membrane was given as gray or grayish 41, yellow 9, white 8, grayish yellow 5, greenish yellow 1 and creamy 2. The highest temperature given was 103.6 F., the lowest 98.5 F., the average being about 100.5 F. The clinical diagnosis was given as diphtheria 28, suspicious or questionable 20, tonsillitis 17, Vincent's angina 5, and scarlet fever 1. The cultural results showed streptococci 29, staphylococci 20, *B. diphtheriae* 14, *M. catarrhalis* 8, pneumococci 1, Hofmann's bacilli 1.

In the entire series of 265 cases, diphtheria was diagnosed on clinical grounds in 99. The bacteriologic examination of these 99 cases showed *B. diphtheriae* present in 64 cases, absent in 35 cases. Among the 73 cases showing *B. fusiformis*, diphtheria was diagnosed clinically 28 times. The bacteriologic examination of these 28 cases showed *B. diphtheriae* present in 1, absent in 27. This gives a percentage in the clinical diagnosis of diphtheria in the presence of *B. fusiformis* of 96.4. The cultural results in this series of cases indicate that streptococci and staphylococci are the most usual in cases of Vincent's angina. It should be further noted that in over three-fourths of the cases of pseudodiphtheria, the direct smears from the membrane showed a predominance of *B. fusiformis*.

99. Abstracted in THE JOURNAL, Oct. 9, 1909, pp. 1222, 1224.

Annals of Ophthalmology, St. Louis

July

- 103 The Pathogeny and Semiology of Pupillary Troubles. Ch. Lafon, Paris, France.
- 104 Medical Advertising in Remote Times. S. H. Brown, Philadelphia.
- 105 Sudden Obstruction of the Retinal Circulation. D. F. Harbridge, Philadelphia.
- 106 Atrophy of the Iris of an Unusual Form. H. G. Goldberg, Philadelphia.
- 107 Modification of the Scissors Operation for Slitting the Lower Canaliculus. J. W. Charles, St. Louis.
- 108 Congenital Defect of Abduction Associated with Retraction of the Eyeball. S. H. Brown, Philadelphia.
- 109 A Modification of the Red-Green Glass Slides of the Ophthalmometer. P. Fridenberg, New York.

West Virginia Medical Journal, Wheeling

August

- 110 Removal of the Prostate. E. O. Smith, Cincinnati.
- 111 The Law in Relation to the Physician. A. M. Cunningham, Elkins.
- 112 Penalty of Death. C. H. Maxwell, Morgantown.
- 113 Trachoma. T. W. Moore, Huntington.
- 114 Sexual Excesses. L. B. Rupert, Nuttallsburg.

Annals of Surgery, Philadelphia

August

- 115 *Benign Bone Cysts, Ostitis Fibrosa, Giant-Cell Sarcoma and Bone Aneurism, of the Long Pipe Bones. J. C. Bloodgood, Baltimore.
- 116 Neoplasms and Other Tumors Involving the Maxillary Bones. S. L. McCurdy, Pittsburg.
- 117 Fracture of the Head and Neck of the Radius. R. Hammond, Providence, R. I.
- 118 Backward Dislocation of the Upper End of the Ulna. J. P. Warbasse, Brooklyn.
- 119 *Autoplastic Transplantation of Bone. H. H. Janeway, New York.
- 120 Spontaneous Forward Dislocation of Wrist-Joint. A. C. Stokes, Omaha, Neb.
- 121 Cystoscopic Examination in Renal Tuberculosis. B. S. Barlinger, New York.
- 122 Cystic Disease of the Breast. W. J. Taylor, Philadelphia.

115. Abstracted in THE JOURNAL, July 2, 1910, p. 45.

119. Autoplastic Transplantation of Bone.—For the cure of a recurrent tumor, Janeway resected a portion of the ulna five and one-half inches long, which ran through the center of the growth. A fragment of bone of the same length and three-eighths of an inch wide and one-eighth of an inch thick was chiselled off from the crest of the tibia, together with its adherent periosteum. This was then placed between the two extremities of the ulna remaining and fastened in place with silver wire. The periosteum of the implanted fragment was also sutured to the periosteum of the remaining portions of the ulna. The wound was closed, with the exception of a small drain at each end. In two months' time the patient could freely use the arm for washing clothes at a tub.

New Orleans Medical and Surgical Journal

August

- 123 The Stools in Infancy. J. L. Morse, Boston.
- 124 Disease in the Tropics (concluded). C. Wellman, Oakland, Calif.
- 125 Value of Transfusion in Pellagra. G. J. Winthrop and H. P. Cole, Mobile.
- 126 Diagnosis of Syphilis by the Method of Complement-Fixation. F. B. Gurd, New Orleans.
- 127 Anesthesia for Throat Surgery. A. M. Caine, New Orleans.
- 128 Relation of Patient Anesthetized to the Anesthetic: 1,000 Cases. L. Levy, New Orleans.
- 129 Etherization. J. C. Bloom, New Orleans.

Denver Medical Times and Utah Medical Journal

August

- 130 Lichen Planus. A. L. Stubbs, La Junta, Colo.
- 131 Practical Anesthesia. F. W. Kenney, Denver.
- 132 The Race Question in America and Criminal Sociology. J. M. Delbeese, Denver.
- 133 Puerperal Fever. E. I. Rich, Ogden, Utah.
- 134 Nose and Throat Conditions of Interest to the General Practitioner. R. R. Hampton, Salt Lake City.

Interstate Medical Journal, St. Louis

August

- 135 A Modern Conception of the Psychoneuroses. E. Jones, Toronto.
- 136 *Secondary Gastric Manifestations in Chronic Appendicitis. J. S. Myer, St. Louis.
- 137 *Treatment of Typhoid. R. W. Wilcox, New York.
- 138 Operability of Gastric Cancer with a Palpable Tumor. A. E. Taussig, St. Louis.
- 139 Functional Disorders of the Bladder in the Female Simulating Cystitis. A. Stein, New York.
- 140 Ephraim McDowell: The Father of Abdominal Surgery. G. Gellhorn, St. Louis.

136. Chronic Appendicitis.—Stress is laid by Myer on the following points in arriving at a diagnosis of chronic appendicitis with gastric phenomena: A careful history should be taken with special reference to the previous existence of acute abdominal attacks, perhaps so far back as childhood. Primary gastric diseases should be excluded through a determination of the motility of the stomach, careful and, if necessary, repeated examination of the stomach contents, bearing in mind that there may be coexisting lesions in the stomach and appendix, and that in a small percentage of cases the acidity may be greatly increased—simulating ulcer, may be diminished—arousing fears of carcinoma, but, as a rule, is found within normal limits. In a differential diagnosis careful examination of the feces for blood, and of the urine, and examinations of the blood itself, will often throw light on obscure cases. Pure gastric neuroses, the expression of a neuropathic tendency, though less common than usually supposed, must be excluded, not forgetting, however, that organic lesions may be encountered in neurotic individuals. Especial care must be taken in cases of habitus enteroptoticus (Stiller) not to misinterpret the physical signs often elicited in these cases in both the epigastric and right iliac regions. Through the careful physical examination, other organs, especially the abdominal, must be excluded as a causative factor, not forgetting again that two lesions, such as gallstones and appendicitis, are not uncommon in the same individual. Lastly, there must be a most careful examination of the right iliac region for positive findings, bearing in mind that in exceptional cases of chronic appendicitis no local signs can be elicited. In the examination of the appendix region one or more of the following signs may be present: (a) Local pain on pressure over McBurney's point; (b) pain radiating toward the epigastrium on pressure over the cecum without, perhaps, any pain at the point of pressure; (c) epigastric distress and nausea on pressure in the appendix region; (d) Meltzer's sign, which consists in pain produced through the elevation of the right leg of the patient while exerting pressure over McBurney's point; (e) pressure in the left iliac region or other portions of the lower abdomen may cause pain to radiate to the right iliac region; (f) spasticity of the cecum; (g) borborygmus in the cecal region on manipulation; (h) exceptionally, in very slender individuals, the palpation of the thickened appendix; (i) pain and infiltration on right side occasionally elicited through rectal examination.

137. Typhoid.—The plan which has yielded the best results in Wilcox's hands has been the administration of the compound solution of chlorin, U. S. P., in doses of 1 dram every 3 or 4 hours, diluted in at least 2 ounces of water. This can

be given, he states, until all fetor of discharges is lost and until the temperature becomes normal. Wilcox says that with the use of this method (1) chlorin can safely be administered without fear of digestive or other disturbance until bacterial activity in the alimentary tract is markedly inhibited; (2) that under its use the tongue becomes cleaner and appetite and digestion improve, the fever is lower and the stools are devoid of odor save that due to the chlorin; (3) the general health, intellectual processes and nervous conditions improve; (4) the duration of the disease is shortened and the patient usually proceeds to a rapid, full recovery.

Bulletin American Academy of Medicine, Easton, Pa.

August

- 141 *Providing Situations for, and Otherwise Assisting Homeless Mothers and Their Infants. M. R. Mason, New York.
- 142 *The Care of Infants Apart From Their Mothers. C. P. Putnam, Boston.
- 143 *Care of Infants Who Must Be Separated From Their Mothers Because of Some Special Need on the Part of the Child. E. L. Coolidge, New York.
- 144 *The District Nurses' Contribution to the Reduction of Infant Mortality. L. D. Wald, New York.
- 145 *The Economic Value of Family Physician Refracting. L. Connor, Detroit.

141 to 144. Abstracted in THE JOURNAL, Dec. 18, 1909, pp. 2125, 2126.

145. Abstracted in THE JOURNAL, April 16, 1910, p. 1333.

Journal Medical Society of New Jersey, Orange

August

- 146 Osteopathy. N. L. Wilson, Elizabeth.
- 147 *Empyema. I. H. Hance, Lakewood.
- 148 *Early Recognition and Diagnosis of Organic Disease of the Nervous System. W. M. Leszynsky, New York.
- 149 Preventable Infantile Diarrhea. T. W. Bebout, Stirling.

147, 148. Abstracted in THE JOURNAL, Aug. 6, 1910, pp. 525, 526.

Gulf States Journal of Medicine and Surgery and Journal of the Southern Medical Association, Mobile

August

- 150 *Treatment of Wounds. A. Jacoby, New Orleans.
- 151 Treatment of Fistulous Tracts, Sinuses and Abscess Cavities by Bismuth-Vaseline Injections. C. R. Andrews, Atlanta.
- 152 Factors in Shortening the Convalescence of Surgical Patients. H. P. Cole, Mobile.
- 153 *Dermoid Ovarian Cysts of Unusual Size. E. N. Liell, Jacksonville, Fla.
- 154 Treatment of Prosalpinx. R. C. Turck, Jacksonville, Fla.
- 155 Conservatism in Operation on the Uterine Appendages. L. A. Suggs, Fort Worth, Tex.
- 156 Surgical Drainage. L. Sexton, New Orleans.
- 157 Endo-Aneurysmorrhaphy of Popliteal Restorative Types. A. P. Crain, Shreveport.
- 158 Appendicitis in the Negro. S. T. Barnett, Atlanta.
- 159 Treatment of Capsular Cataract. W. S. Sims, Jackson, Miss.
- 160 *Varicocele: Points in Technic of the Operation. J. H. Johns, Atlanta.
- 161 Surgical Tuberculosis: Special Reference to the Use of Tuberculin in Diagnosis and Treatment. R. T. Taylor, Baltimore.
- 162 *Traumatic Myositis Ossificans, Limited to a Single Group of Muscles. Operation—Recovery. I. Cohn, New Orleans.
- 163 Gunshot Wounds of the Intestine. J. D. Bloom, New Orleans.

150. The Treatment of Wounds.—Preparatory work of all wounds, Jacoby says, should be similar, and any processes which may suit the personal preference of the surgeon will be equally satisfactory. After suturing the incised wound, he feels that an application of iodine is of value, and that a dressing of balsam of Peru in castor oil will aid in the removal of the gauze and give freedom from pain when the first dressing is applied. The lacerated wound should be swabbed with iodine and then followed by an application of balsam of Peru in castor oil, the dressing to be changed not oftener than every 4 days. The granulating wound requires nothing but a dry piece of gauze, which should not be removed, but left to act as a scab or graft. The surface covered with the gauze should be wiped off with peroxid of hydrogen and dry gauze reapplied. The dressing may be applied under such circumstances as frequently as one wishes, but Jacoby advises that it be done not oftener than once in 4 days, as it inflicts unnecessary traumatism and removes tissue growth. The clean operative wound should be examined in 48 hours and again 2 days later. An infected operative wound should be opened freely, and all gangrenous tissue excised, swabbed with iodine, and packed with balsam of Peru in castor oil dressing. The wound should be dressed daily

until the infection is controlled and thereafter every 4 or 5 days. The balsam of Peru in castor oil is 1 to 4 and the iodine used is the strong tincture. In abscess cavities Jacoby uses iodine irrigations, 1 dram to 2 quarts of hot water. The abscess cavity may be packed with the balsam of Peru in castor oil and left alone for 4 or 5 days. For the past year Jacoby has been trying an application of 50 per cent. in alcohol in infected cases with excellent results, but the alcohol solution must be applied daily or the dressing encased in rubber tissue. He believes that it is the ideal dressing in such cases and also in operations on the toes, where infection is liable to occur. It will also serve as an excellent pack in abscess and bone felon cases.

153. Dermoid Ovarian Cysts of Unusual Size.—The cases of dermoid ovarian cysts reported by Liell are of interest, not alone because of their enormous size—weighing, respectively, 42, 39 and 32 pounds; but in connection with the singular fact that all 3 were of the left ovary.

160. Varicocele.—The technic used by Johns is as follows: After resecting the veins by the "Bennett-Howse" method, a clamp is applied to the scrotum in such a manner as to allow the removal of the redundant portion. Twelve or fourteen silkworm-gut sutures are then introduced through the holes in the clamp, using long, slender, trocar-pointed needles. The ends of these sutures are then gathered into two bundles and clamped with hemostats. An incision is then made through the skin, with a sharp scalpel, about one-eighth of an inch from the clamp, the remaining tissues being cut through with strong scissors curved on the flat. The subcutaneous tissues, consisting of dartos and cremasteric fascia, are then sutured with a No. 0 plain catgut continuous suture, using a small round-pointed fishhook or fistula needle. The first turns of a surgeon's knot are then made in the silkworm gut, and drawn tight. The clamp is then removed, and after waiting a few minutes for the hemorrhage, which always follows removal of the clamp, to cease, the skin edges are brought together with a No. 0 plain catgut continuous suture on a long, straight needle. The silkworm-gut sutures are then adjusted and the knots completed. The reason for waiting to complete the knots is that they may be loosened and any bleeding points, which promise to give trouble, caught and tied. This is rarely necessary, but is very easily done, if need be, as the buried hemostatic suture prevents wide gaping of the wound even if all the silkworm-gut sutures are untied.

162. Traumatic Myositis Ossificans.—Following a severe blow on the thigh by a heavy piece of timber, Cohn's patient noticed a hard mass in the "fleshy part" of the thigh. Palpation disclosed a hard mass occupying the anterior and outer aspect of the lower two-thirds of the thigh. A feeling of crepitation was elicited on superficial palpation. The mass was not adherent to the skin. At the operation the mass could easily be felt in the belly of the quadriceps extensor, and covered the anterior aspect of the femur for about 6 inches; the lower limit could be felt about 2 inches above the patella, the outer border extending well beyond the limit of the femur. The mass was closely adherent to the periosteum. Recovery was complete and uneventful.

Albany Medical Annals

August

- 164 Functions of a County Medical Society. A. MacFarlane, Albany.
- 165 Fracture of the Lower Jaw. L. Blatner, Albany.
- 166 Faraday: His Life and Work. W. G. Tucker, Albany.

St. Paul Medical Journal

August

- 167 Polar Anemia. L. Smit, Bergen, Norway.
- 168 Pharmacology of the Salicylates. E. Klaveness, Sioux Falls, S. D.
- 169 The United States Pharmacopeia. P. Bernhart, Sioux Falls, S. D.

Montreal Medical Journal

August

- 170 Canadian Effort Against Tuberculosis. J. G. Adami, Montreal.
- 171 *Condition of the Lymphatic Glands as Factor in Diagnosis of Tuberculosis of the Hip and Lower Spine. A. M. Forbes, Montreal.

- 172 Use of Differential Pressure in the Treatment of Empyema. E. M. Von Eberts, Montreal.
 173 Reflex Nasal Neuroses. C. M. Stewart, Toronto.
 174 Pelvimetry and Abdominal Palpation. H. M. Little, Montreal.
 175 Beaumont and Alexis St. Martin. R. Monahan, Montreal.
 176 Tachycardia. J. A. Baird, Hemmingford, Quebec, Canada.
 177 Human Trypanosomiasis. J. L. Todd, Montreal.
 178 Neurasthenic Conditions Referable to the Nose and Throat. W. H. Jamieson, Montreal.
 179 *Banana Flour and Plantain Meal for Children Suffering from Diarrhea. A. E. Vipond, Montreal.

171. The Condition of the Lymphatic Glands.—In November, 1909, Forbes observed that the deep lymphatic glands in the iliac and inguinal regions were more likely to be enlarged in disease of the spine than in hip disease. He says that in early cases of hip disease it is most unusual to see a bilateral or even an unilateral enlargement of the lymph glands, whereas in lumbar Pott's disease and in tuberculous lesions adjacent to the lumbar region, such a unilateral enlargement is common, and a bilateral enlargement not uncommon in his experience. Five cases are reported illustrating the difficulties of the diagnosis between tuberculosis of the lower vertebrae and hip disease, and suggesting the possibility of the condition of the lymphatic system being a factor in the diagnosis. In all these cases the diagnosis of hip disease had been made.

172. Differential Pressure in Empyema.—Von Eberts believes that the widest field for the application of differential pressure is found in the treatment of empyema, where by its means and by the application of a suitable dressing after thoracotomy, the period of the disability may be very greatly curtailed. At the time of operation and at subsequent dressings positive differential pressure is especially suitable, as with a portable apparatus not only hospital patients, but also patients operated on in private homes, may enjoy the benefit of this method of treatment. Following thoracotomy an empyemic cavity remains exposed to atmospheric pressure. In extensive cases the whole lung may be collapsed and may lie in close apposition with the mediastinum. Further, the mediastinum and pericardium are not infrequently displaced toward the sound lung. Under such conditions, each inspiratory act results in the deflection of the mediastinal septum and collapsed lung toward the sound side in response to the negative tension produced on that side during inspiration.

With the use of differential pressure and the application of air-tight dressing, such as the one which von Eberts has devised, not only is the mediastinal deflection reduced, and the cavity thereby diminished in size, but the air within the abscess cavity becomes negative in tension during inspiration, and, in consequence, the mediastinum and pericardium tend to be further deflected toward the cavity and the collapsed lung to expand in the same direction. An immediate result of such a method of treatment is the prompt relief of the cyanosis. Apart from the curtailment of the period of disability, the absence of odor and of pain and discomfort of prolonged dressings, the earlier restoration of the collapsed lung to its normal respiration activity may remove to a large extent the danger of a subsequent tuberculous infection.

179. Banana Flour and Plantain Meal as a Food.—Vipond describes the good results he has obtained from the use of banana flour and plantain meal in cases of diarrhea in infants. He says it is a nourishing and valuable food and one that is easily digested, but not an ideal infant food, as the starch percentage is high and the fat percentage is low; however, it will tide over a critical period. The dextrose and starch in banana flour vary according to the method used in preparing the flour. It has remarkable astringent qualities, he states, as has also the plantain meal, a nice white flour, more palatable, but more difficult to obtain, and more expensive.

Buffalo Medical Journal

August

- 180 The Prevention and Cure of Disease by the Inclined Desk-Leaf or Drawing Table. G. M. Gould, Ithaca, N. Y.
 181 Conference of Ophthalmologists with Organization Officials of Michigan on Family Physician Refracting. L. Connor, Detroit.
 182 *Treatment of Surgical Tuberculosis by Vaccines. J. A. MacLeod, and N. K. MacLeod, Buffalo.

182. Abstracted in THE JOURNAL, Feb. 26, 1910, p. 734.

Archives of Diagnosis, New York

July

- 183 Diagnostic Errors by Bismuth Paste Injections. E. G. Beck, Chicago.
 184 *The Dull-Flat Percussion Note: Its Significance in Early Pulmonary Tuberculosis. R. Abrahams, New York.
 185 Diagnosis of Bronchial Asthma. T. F. Reilly, New York.
 186 An Accurate Method of Estimating the Height of the Liquid in Hydrothorax. J. H. Barach, Pittsburgh.
 187 Diagnosis of Uncinariasis Infection: Especially Examination of Feces for Eggs of Intestinal Parasites. C. C. Bass, New Orleans.
 188 *Recognition of Diplomellituria. H. Stern, New York.
 189 The Movable Cecum: Its Demonstration by the Roentgen Rays. G. Schwartz, Vienna, Germany.
 190 Color Reaction of Human Feces with Corrosive Sublimate—Acetate Solution: Its Relation to Biliary and Intestinal Function. M. Schott, Cleveland, O.

184. The Dull-Flat Percussion Note.—The percussion note described by Abrahams has been and is variously described as "diminished resonance," "relative dullness," "impaired resonance," "wood-like sound," etc., all graphic, says Abrahams, but none to the point. Technically, the dull-flat note is shorter in duration and higher in pitch; its acoustic qualities stand between dullness and flatness, or it is a note which is duller than dull. Abrahams emphasizes the fact that some areas of the lung normally possess dullness on percussion. Those areas are (1) the right apex and a finger's breadth under the right clavicle; (2) the intracapsular space, say from the seventh cervical to the fourth or fifth dorsal vertebra, and (3) in some instances the lower third of the base of the right lung. In the presence of an early infiltration, either of these areas drops its normal dullness and assumes the dull-flat resonance. This change in tone is unmistakable on light percussion. The dull-flat note is also of value in ascertaining the progress of the tuberculous process in any part of the lung. Take, for example, the left apex. Under normal conditions the percussion note of the left apex is pulmonary or vesicular. In the presence of an infiltration the vesicular resonance will change into dullness. Dullness indicates incipency. By watching the modifying degrees of the dullness in that apex and the eventual change of that note into the dull-flat, one can predict with accuracy the progress that the tuberculous deposit is making. It is evident that whereas lung areas which yield vesicular resonance on percussion may be said to be considerably advanced in tuberculosis when they yield the dull-flat note, areas which are normally characterized by dullness on percussion may be said to be in the incipient stage when they are possessed of the dull-flat sound.

188. Diplomellituria.—By diplomellituria Stern understands the contemporaneous or alternate occurrence of diabetic and non-diabetic glycosuria in the same individual. It is the result of two concurrent or intercurrent affections of dissimilar character having the one symptom, glycosuria, in common. The recognition of diplomellituria depends on the alternate prominence of one set of symptoms, including the respective glycosuria.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

August 6

- 1 The Ethics of Insanity. T. D. Greenlees.
- 2 Rheumatoid Arthritis. C. J. MacAllister.
- 3 Cats as Plague Preventers. A. Buchanan.
- 4 Vicious Circles Associated with Disorders of the Urinary Organs. J. B. Hurry.
- 5 Treatment of Small-Pox in Red Light and in the Dark. C. H. Würtzen.
- 6 Recovery from Apparent Arteriosclerosis. W. M. Crofton.

Lancet, London

August 6

- 7 *Status Lymphaticus in Its Relations to the Use of Anesthetics in Surgery. D. W. Buxton.
- 8 Removal of the Appendix in the "Quiet" Period. W. H. Battle.
- 9 Preventive and Administrative Measures for the Control of Tuberculosis in New York City. H. M. Biggs.
- 10 Incidence of Tuberculosis in Children, with Special Reference to School Attendance. J. E. Squire.
- 11 Bilharziosis and How to Prevent It. J. F. Allen.
- 12 *Heart Puncture. J. W. Milne.
- 13 Serodiagnosis of Hydatid Disease: Fixation of the Complement. K. Eckenstein.

7. The Status Lymphaticus.—So far as our knowledge goes at present, Buxton believes we are compelled to admit that the case against anesthetics as the cause of death in status lymphaticus, is not proved. Their danger is probably the same as that incurred by any feeble child or adolescent and not more. The diagnosis of a case of lymphatism would not be a contra-indication to operation or the use of an anesthetic; it should, however, compel us to take special care in the direction of building up the physique of the patient before operation, when this is possible. These cases are not to be undertaken in a light-hearted way, they need the utmost care, experience and special attention, and no one, says Buxton, who values his peace of mind, should embark on the anesthetization in a case of lymphatism without adequate knowledge and skill and more than common experience.

12. Heart Puncture.—A girl aged 20 was healthy till the age of 18—two years ago—when she had rheumatic fever and lay ill for 3 months. The heart was damaged and she ever after had a mitral bruit, systolic in time, but with no dilatation and no anasarca. Six months ago she had a recurrence which left the heart still more damaged, and the apex beat was now always in the nipple line and one inch below. She had no evidences of failure till she was taken ill again with a cold and rheumatic pains. In addition to her cardiac condition there was well-marked hypostatic engorgement of both lung bases, chiefly on the right side. On May 23, there was dilatation of the heart one inch beyond the nipple to the left, and one inch beyond the right border of the sternum to the right. Milne perceived that heart failure was imminent, and that nothing but a reduction in the volume of the blood could avert death. He therefore proceeded to open the left median basilic vein but no blood flowed. He then opened the right median basilic with a like result. He cut deeper on the left into the brachial artery above its division into the ulnar and radial arteries, and only a feeble trickle of dark blood flowed. During all these manipulations the patient felt no pain, but lay half unconscious, with dilated pupils, cold sweats, cyanosed color and stertorous respiration, while the heart was getting more and more distended and Milne could feel no pulse in the temporals.

Milne then selected the fifth intercostal space, close to the left border of the sternum, as being in the circumstances likely to lie over the right auricle, since the distention had been more and more to the left. Having frozen the spot with ethylechlorid, he inserted a trocar and cannula of about the size of a No. 3 catheter vertically into the heart. Blood immediately flowed of about the color of porter and thick in consistency, and the cannula oscillated with the heart beats through an angle of about 25 degrees, inclining from the original vertical position to this extent to the right. The blood came in jets only when the cannula was vertical—that is, when its point was pulled to the right. Milne drew off 20 ounces and then withdrew the cannula and closed the puncture by acupressure. Almost suddenly the patient revived becoming quite clear and collected; she expressed herself as having felt no pain and as being quite relieved. A small probang was passed down the trachea and took up a lot of mucus. The patient was left in a different state altogether, with no cyanosis to speak of, and the venesections showing blood through their dressings. The pulse at the temporals was fair, the lips were pink, and the pupils normal, and when the sweat was wiped off no more appeared. This was at 3.30 p.m., the puncture having been made at 3.20 p.m. She remained clear and free from pain and distress till 7.20 p.m., when she died. Puncture of the heart thus prolonged life, in Milne's opinion, for four hours after the circulation was so feeble as not only not to make the opened veins bleed, but even the brachial artery was unable to show pressure at all.

Medical Press and Circular, London

August 3

- 14 Principles of Treatment of Pulmonary Emphysema. W. Ewart.
- 15 Evolution of the British Medical Association and Its Work. H. T. Butlin
- 16 Recent Progress in Medical Science. J. M. Bruce.
- 17 An Unrecognized Form of Malaria. G. LeMoine.
- 18 Radium Treatment of Cancer. L. Wickham.

17. Unrecognized Forms of Malaria.—One of the forms of malaria described by LeMoine is malaria nostras, which he has encountered in the north of France. It is characterized by continuous fever without any marked rise of temperature. It may last for weeks, resembling tuberculosis or mucous fever far more than intermittent fever. LeMoine insists strongly on the presence of signs of consolidation of the right apex in malaria, especially in the latent form. The state of congestion is frequently met and naturally leads one to suspect tuberculosis, it persists for long periods in sufferers from malaria who have returned from the colonies, and is also seen in a milder and less persistent form in malaria nostras.

Medical men practicing in the district of Armentieres long since called attention to a form of malaria in which the symptoms affect a dyspeptic form. The victims gradually lose their appetite and complain of a feeling of oppression after meals, belching and evening vomiting. There are true symptoms of dyspepsia, but no treatment is of benefit unless associated with the administration of quinin. In these cases the liver can usually be felt below the ribs, and the spleen can be outlined on percussion. The patients may never have had an acute attack, yet for many years they have been impregnated with the malarial poison. Country practitioners often see patients who have almost constant fever with a tendency to persist for several weeks.

Clinical Journal, London

July 27

- 19 Sigmoiditis and Proctitis. F. C. Wallis.
- 20 Migraine. G. Rankin.
- 21 Practical Points in the Management of Difficult Labor. H. R. Andrews.

20. Migraine.—The following prescriptions have often proved useful in Rankin's practice: (a) chlorid of ammonium, 15 gr.; phenacetin, 10 gr.; codein, 1-3 gr. (to be dispensed either in the form of a powder or of two cachets); (b) antipyrin, 10 gr.; salicylate of soda, 10 gr.; tincture of gelsemium, mxv.; spirits of chloroform, mxx.; water to one ounce; (c) heroin, 1-12 gr.; dilute hydrobromic acid mxxx; citrate of caffein, 5 gr.; compound tincture of cardamom, mxx; chloroform water to one ounce. In the case of all of them directions should be given for a dose to be taken every two hours for three doses; and every four hours thereafter until the pain is relieved. In women when the migrainous attacks recur only at the menstrual times, the use, for a week before each period, of a mixture of chloral hydrate, 10 gr., and bromid of sodium, 20 gr., given 3 times a day, is often successful, he states, in suppressing the attack or in diminishing its severity. When the temporal artery on the affected temple is prominent and throbbing, steady pressure over it may succeed in affording temporary relief.

Journal of Tropical Medicine and Hygiene, London

July 15

- 22 The Transmission in Nature of *Trypanosoma Gambiense*. G. C. Low.
- 23 The Spread of Cancer Among the Descendants of the Liberated Africans or Creoles of Sierra Leone. W. Renner.
- 24 Porocephalasis in Man. L. W. Sambon.

British Journal of Children's Diseases, London

July

- 25 Infant Mortality. C. P. LaPage.
- 26 Vincent's Angina. J. D. Rolleston.
- 27 Bruits Heard Over the Manubrium Sterni in Children. J. E. H. Sawyer.

26. Vincent's Angina.—Vincent's angina according to Rolleston is an uncommon disease, occurring in 0.9 per cent. of all cases of sore throat, and in 4.9 per cent. of cases of non-diphtheritic angina. During a five years' period of observation in a hospital population of all ages, the affection was confined to children between 2 and 16 years. No instances of contagion were observed. Its incidence was greatest in spring, least in autumn. It was not found to show any predilection for weakly children or for cases of oral sepsis. There is nothing characteristic in its prodromal symptoms. Rolleston holds that there are not two distinct varieties of Vincent's angina. The ulcerative is merely a later stage of the membranous form. Constitutional symptoms are slight or

- 77 Peritonitis with (Zur Peritonitis albuminosa Ollier.)
 78 Perforation and Necrosis of the Gall-Bladder. E. Härtig.
 79 Torsion of Great Omentum. (Torsion des grossen Netzes.) H. Finsterer.
 80 *Acute and Duodenal Ulcers. (Magen- und) H. Finsterer.
 81 *Further experiences with Differential Pressure. (Ueber Ueberdrucknarkose.) M. Tiegel.

71. Hemostasis by the Momburg Belt Constriction.—Burk reports three cases in which the Momburg belt constriction was applied but the experiences were not encouraging. Momburg's technic was strictly followed and in two cases no special influence on the respiration was observed or notable fluctuation in the blood pressure. In the third case the patient was a seamstress of 29, operated on for removal of a vulvar fibroma. The pulse and respiration were good during the operation and after removal of the tubing, but an hour later the pulse became imperceptible. It revived under saline infusion with a few drops of a solution of the active principle of the suprarenal gland and was at 160, persisting small and thready and varying from 140 to 160 for 24 hours. The operation had been done under veronal-scopolamin-morphin-ether general anesthesia. The heart remained very weak and severe enteritis developed but there was no rigidity of the abdominal wall, probably from injury of the innervation from the Momburg belt technic. The patient succumbed the next day with signs of diffuse peritonitis, and autopsy revealed patches of gangrene in the small intestine with resulting peritonitis. The circular strips of suffusion in the walls of the loops of the small intestine were unmistakable signs of direct strangulation from the constricting tubing. He explains the severe injury of the intestine in this case, while nothing of the kind was observed in the 34 other cases on record in which this Momburg technic has been applied, as owing to the fact that the patient was very thin and debilitated. This mishap warns against the use of this technic for very thin persons or when there is an ulcerated or chronic inflammatory condition of the intestine. Another possible danger is an ischemic paralysis of the distal end of the spinal cord, which Pagenstecher observed in one case.

72. Releasing Constricted Nerve after Fracture of the Radius.—Els reports most encouraging results from neurolysis to release the nerve from an unfavorable position or from secondary cicatricial callous growth. No harm seems to have resulted from the operation. His patients were three young men, a young woman and a boy of 8. He gives the details of each case.

75. Congenital Scoliosis.—Kayser has been able to find only between 50 and 60 cases of congenital scoliosis on record and he gives an illustrated description of another case. His patient was a girl of 9 of healthy parents and healthy herself except for the cervico-dorsal scoliosis. Until the spine was examined with the Roentgen rays the slight deformity had been attributed to cervical ribs.

80. Acute Perforation of Gastric and Duodenal Ulcer.—Finsterer reviews the experiences at the surgical clinic at Graz with 18 cases of perforation of gastric or duodenal ulcer in the last ten years, and emphasizes that the fate of the patients rests in the hands of the physician who sees the case first, as salvation lies exclusively in an early operation. Even if 12 or 24 hours have elapsed, operative treatment should be tried, he asserts, as a few cases are on record of recovery even after an operation as late as the seventy-second hour in extensive peritonitis. He advocates copious rinsing with warm salt solution, aspirating it out again with the Luksch aspirator, as the safest and best method of treatment after the operation.

81. Differential Pressure.—Tiegel gives an illustrated description of the simple apparatus with which he induces positive pressure in the lungs in the course of operations on the chest as he has applied it in 8 cases. He also reports experimental and clinical research which has shown that a small amount of oxygen given during the positive pressure is able to keep the subject in good condition even when the lung is collapsed. A very slight degree of positive pressure in the intrabronchial air does not injure the lung, he says, nor the conditions in regard to the circulation, while it aids

in preventing severe postoperative atony of the stomach. He warns that the tanks should be tested before using the gas; once he had a tank of carbonic acid gas sent by the dealers by mistake. He regards his demonstration of the fact that respiration of pure oxygen under a minimal pressure (1 cm. water) is sufficient to supply the need of oxygen, as an important progress. The arterialization of the blood is more extensive with it even than with ordinary respiration. The lung does not have to be inflated much when the pure oxygen is used, and thus injury from the pressure is avoided.

Berliner klinische Wochenschrift

July 25, XLVII, No. 30, pp. 1397-1440

- 82 *The Hand as an Obstetric Instrument. (Die "Hand" als Instrument des Geburtshelfers.) W. Liepmann.
 83 Ehrlich's "606." (Anwendung des Ehrlich-Hata'schen Syphilitis in neutraler Suspension.) L. Michaelis.
 84 Inherited Syphilis and the Wassermann Reaction. P. Mulzer and W. Michaelis.
 85 Experimental Syphilis of the Testicle in the Rabbit After Inoculation with Congenital Syphilitic Material. M. Koch.
 86 Determination of Tubercle Bacilli in Disseminated Miliary Lupus of the Face and Acutis. G. Arndt.
 87 Action of Serum on Ether Hemolysis. G. Fischer.
 88 Hemolytic Red Blood Corpuscles. (Hämolytisch wirkende Erythrocyten und Darstellung von Immunhämolysinen im Reagenzglas.) G. Fischer.
 89 Favorable Prospects for Operative Treatment of Extradural Spinal Suppuration. (Fall von extraduraler Spinalabszess.) E. A. Oppenheim.
 90 Obesity in the Young. (Fettleibigkeit im Jugendalter.) H. Stern (New York).
 91 Turgosphygmography or Sphygmography? F. Fleischer.
 92 Protecting Devices for Roentgen-Ray Work. F. Davidsohn.

82. The Hand in Obstetrics.—Liepmann discusses the indications for the use of the hand as an instrument to aid delivery and the various manual maneuvers, lauding Hofmeier's in combination with the Walcher position as particularly serviceable with contracted pelvis. In placenta prævia he advocates Strassmann's method of making external version on the breech and then with two fingers drawing the foot down through the cervix, declaring that this is far simpler and less dangerous than the combined Braxton-Hicks version or the use of the inflatable bag. He knows of an instance in which the forceps introducing the bag perforated the vault of the vagina. At the same time he warns against using the hand to dilate the cervix in case of placenta prævia; trained judgment is required to select the cases in which this can be done. In conclusion he describes what he thinks is a new maneuver to guide the head exclusively with the hand through the pelvic passage to safe delivery. The anesthetized patient lying across the bed, the right hand is placed on the fundus of the uterus to aid in expression and the left hand, gloved, is introduced into the vagina, where it serves to dilate the vagina, then to dilate the os, then to rotate the head and finally to extract it. When the hand is deep in the vagina, the fingers are spread, thus dilating the vagina, and making it possible to grasp the head as one grasps a ball. By a combination of pressure from without, turbinal rotation and cautious extraction, the head is finally worked past the perineum. It is astonishing, he exclaims, how firmly and safely it is possible thus to grasp the head, taking it in the hand like a tennis ball. In a case described, the woman, a iv-para, had a temperature of 103 F., pulse 110, the internal os being dilated about the size of one's palm, the head impacted in the pelvic outlet. The consultants advised the inflatable bag, then an attempt at forceps and in case this failed, perforation. While the instruments were being made ready, Liepmann delivered the child in less than five minutes. Even if this maneuver does not succeed, it at least provides much better conditions for applying forceps, and is useful when there is reason to fear that the forceps will slip on account of the smallness of the head, in premature deliveries and at twin births. The largest child he has thus delivered weighed 3,000 gm., and was 50 cm. in length. The article is illustrated.

Deutsches Archiv für klinische Medizin, Leipsic

- XCIX, Nos. 5-6, pp. 431-636. Last indexed August 27, p. 800
 93 Morphology of Blood Production in Pernicious Anemia. (Morphologie der Bluterzeugung bei perniziöser Anämie.) K. Ziegler.
 94 Differential Diagnosis Between Eventration and Hernia of the Diaphragm. M. Otten and E. Schetold.
 95 *Pathologic Electrocardiograms. A. Pribram and R. H. Kahn.
 96 *Further Research on Hemophilia. H. Sahli.

- 97 *Encephalitis After Whooping Cough. (Ueber Encephalitis nach Keuchhusten.) A. v. Domarus.
98 The Viscosity of the Blood and its Flow in the Arterial System. (Die Viskosität des Blutes und seine Strömung im Arteriensystem.) R. Thoma.

95. Pathologic Electrocardiograms.—Pribram and Kahn analyze the findings in 300 electrocardiograms taken of various patients with different forms of heart disease. Seven large tables give 129 electrocardiograms for study of the details.

96. Nature and Treatment of Hemophilia.—Sahli has continued his research on 4 typical hemophiliacs and also on 2 new ones, striving to obtain better insight into the nature of hemophilia and to explain the phenomena observed by various authors. His assumption is that hemophilia is an anomaly of the cellular elements of the blood and of certain other cells, especially in the walls of the vessels, entailing defective production of thrombokinase. This latter factor is evident when the bleeding continues although the coagulating property of the blood after much loss of blood may be normal or above. The practical lessons from this work are that the hemophilia may be constitutionally influenced by repeated injection of fresh human blood serum for the purpose of thrombokinase enrichment by the intermediate link of antikinase production. Another way is by repeated withdrawal of small amounts of blood by puncture of a vein with a fine cannula, for the similar purpose of thrombokinase enrichment, by means of the physiologic reaction that follows. Experience has shown that there is no danger of hemorrhage in a hemophiliac if the vein is punctured with a fine cannula, permitting harmless withdrawal of blood and the consequent physiologic reaction. An ordinary venesection might prove dangerous. Two of his patients are brothers and another is their uncle and two other uncles died of hemorrhage.

97. Encephalitis after Whooping Cough.—In the case reported, a healthy boy of 6 was convalescing from a moderate attack of whooping cough when febrile general symptoms developed soon accompanied by right hemiplegia and loss of voice. The paralysis gradually subsided but months later there are traces of the cerebral hemiplegia. In 5 similar cases on record autopsy revealed a hemorrhagic encephalitis, such as is the rule with influenzal encephalitis.

Deutsche medizinische Wochenschrift, Berlin

July 28, LXXVI, No 30, pp. 1333-1432

- 99 *Experiences with Ehrlich's "606." (Erfahrungen und Erwägungen mit dem neuen Ehrlich-Hataschen Mittel bei syphilitischen und metasyphilitischen Erkrankungen.) G. Treupel.
100 *Technic for Injection of Ehrlich's "606." (Ueber die Technik der Injektion des Dioxo-diamido-arsenobenzol.) W. Wechselmann and C. Lange.
101 *Operative Treatment of Cerebral Hemorrhage. (Vorschlag zur operativen Behandlung des Hirnschlags [Hirnblutung].) F. Franke.
102 Research on Trypanosomes in Africa. (Trypanosomenbefunde am Tanganika und andere Beobachtungen.) Kleine.
103 Paroxysmal Tachycardia with Exophthalmic Goiter. L. Bambergel.
104 Sick Breast-Fed Infants and Mixed Feeding. (Ueber kranke Brustkinder und vom Allaitement mixte.) H. Risel.
105 Fracture of the Astragalus. (Bruch des Processus posterior tali.) Grunert.
106 Double Private Residence for Two Physicians with Common Waiting and Operating Rooms. (Doppelwohnhaus für zwei Aerzte.) H. Gruber.

99 and 100. Commented on editorially in THE JOURNAL, Aug. 13, 1910, page 601.

101. Operative Treatment of Apoplectic Stroke.—Franke advocates operative intervention in case of acute cerebral hemorrhage, before irreparable changes have been induced from compression by the extravasated blood. The brain seems to be able to stand without serious injury considerable compression if the strain is not kept up too long and if the blood is evacuated before the brain-tissue has softened under its direct influence and its toxic action. In a recent case, the autopsy findings when compared with the course of the syndrome impressed him with the conviction that operative treatment after the first shock would in all probability have saved the patient. Puncture of the brain or trephining would have released the blood, especially if a fine metal can-

nula with holes in the side had been slipped in over the needle and left in the opening for permanent drainage. He trephined in the case reported but not until two weeks had elapsed after the hemorrhage; irreparable harm had already been done and the patient soon succumbed. He makes the trephine opening with the Gigli wire saw and remarks that the dangers of puncture and trephining are negligible in comparison with those which cerebral hemorrhage entails. Minute examination and observation are necessary to locate the site of the hemorrhage; the most apparently insignificant signs must be watched for and noted, for example, slight paresis of the facial muscles, mouth breathing, behavior of the abdominal and cremaster reflexes, which are diminished or abolished on the paralyzed side, the Babinski reflex on the side involved, slight tension of the extremities during passive movements on the sound side, conjugated deviation of the eyes toward the side involved or a history of some preceding slight apoplectic attack and determination of the site of the hemorrhage at that time. He urges that a surgeon should be called in during the first few hours after a serious apoplectic stroke so that the physician and the surgeon can study the case together, locate the hemorrhage and discuss whether the condition permits of operative intervention or is not serious enough to demand it. The puncture could then be done at once in the home; if this fails to give relief, trephining might follow. He does not think that a cautious removal to a hospital would essentially increase the dangers for the patient. By this means the blood could be removed from the brain within 2, 3 or 5 hours, this period of time being allowed to elapse to permit revival from shock and reduce the danger of serious after-hemorrhage. The practitioner generally is the one who first sees patients with cerebral hemorrhage, and to him Franke appeals to help place cerebral hemorrhage on the same plane of successful treatment as perforation of a viscus, stab wounds of the heart and acute peritonitis.

Deutsche Zeitschrift für Chirurgie, Leipzig

June, CV, Nos. 3-4, pp. 261-444

- 107 Operative Treatment of Congenital Megacolon. (Zur operativen Behandlung der Hirschsprung'schen Krankheit.) A. Biermann.
108 Multiple Cholangitic Abscesses in the Liver Cured by Drainage of the Gall-Bladder. (Heilung multipler cholangitischer Leberabszesse durch Drainage der Gallenblase, nebst Bemerkungen über die Drainage der Gallenwege: Cholecystodochostomie.) F. Franke.
109 The Murphy Button Applied to the Large Intestine: 13 Cases. (Ueber die Anwendung des Murphyknopfes am Dickdarm.) R. Mühsam.
110 Primary Cancer of the Appendix. (Zur Frage der primären Wurmfortsatzcarcinome.) T. Voeckler.
111 Hard Traumatic das harte
traumatische
112 Pathogenesis o (Kasuistik
und Pathogen... W. Los-
sen.
113 Plastic Operation to Close Defects in the Ureter in Women. (Ueber plastischen Ersatz von Ureterdefekten beim Weib.) L. v. Stubenrauch.
114 Volvulus of the Small Intestine as Tardy Consequence of Appendicitis. (Ueber Dünndarmvolvulus als Spätfolge von Appendicitis.) E. Haim.
115 Diagnosis and Treatment of Early Stage of Acute Appendicitis. E. Sonnenburg.
116 *Thyroid Treatment to Promote Healing of Wounds. (Schilddrüsen und Wundheilung.) A. Siegmund.
117 Indirect Fractures of the Shaft of the Fibula. Grunert.
118 Hip-Joint Dislocation in Younger Children Resulting from Inflammation. H. Ziegner.
119 Diagnosis by Auscultation of Adhesions between Large Abdominal Tumors and the Anterior Wall of the Abdomen. (Diagnose der Verwachsungen grosser Bauchtumore mit der vorderen Bauchwand mittelst der Auskultation.) V. Piazza-Martini.

116. Organotherapy in Surgical Prophylaxis.—Siegmund declares that the technic of the surgeons cannot be perfected much further and yet the outcome of operations is still a matter of chance in a great degree. This is owing to the individual conditions of tolerance and resistance in the different cases, just as one person contracts typhoid while others equally exposed escape. Two recent cases in his experience suggest that this individual tolerance and resistance may be due to the individual functioning of the ductless glands, the thyroid in particular. In one of the cases a woman of 34 had displayed from childhood a tendency to suppuration on the slightest excuse. Like a hemophiliac's hemorrhages,

she produced pus on the least provocation, and naturally there was extensive suppuration after an injury of the arm from broken glass. In the other case the reverse was observed; the woman of 43 suffered from distressing subjective symptoms of sclerosis of the middle ear and was also nearly blind. In order to relieve the tormenting roaring sounds he made a seton in the back of her neck, having cured another patient by this means of incessant vertigo and headache, chronic through years, and the cure has been complete for several years to date. But in the present case there was no suppuration in the seton although he tended it carefully every day. In both cases the outcome of the surgical intervention was not as the surgeon willed but as Nature willed. The only way in which the surgeon can obtain his purpose is by following the trail blazed by Nature, and Siegmund thinks this can be done by organotherapy. The way to do this was suggested by a third case in which a wound on the head of a small child suppurred interminably until he noticed that the other, older children in the family showed signs of thyroid insufficiency. Notwithstanding that the youngest was robust and lively, he reasoned that a family tendency to defective thyroid functioning might be the cause of the persisting suppuration, and this assumption was sustained by the rapid healing of the wound under thyroid treatment. His other 2 patients also presented signs of thyroid insufficiency and he believes that thyroid treatment is also indicated for them. Prophylactic thyroid treatment in puerperal sepsis has many arguments in its favor, he explains, and calls attention to the fact that the thyroid may have brief periods of disturbed functioning when at other times it does its work normally. Siegmund regards this as a virgin field rich in promise. Each ductless gland evidently produces a number of substances in its internal secretion, each of which has a different action, the lack of one or more entailing myxedema, exaggerated pus production, etc., as the case may be. The more of these substances we can isolate and use, the more scientific the organotherapy, but even with the thyroid preparations already at our disposal it is possible to solve many of the present questions in respect to constitutional predisposition, suppuration and granulation of wounds, production of protecting substances in the blood, phagocytosis, therapeutic hyperemia, etc.

Fortschritte der Medizin, Leipsic

July 14, XXVIII, No. 28, pp. 865-896

120 Hernias. F. Kayser.

121 *Regulatory Albuminuria. F. C. R. Eschle.

121. **Regulatory Albuminuria.**—Eschle applies this term to the albuminuria liable to be observed after excessive physical exercise, with suppuration elsewhere in the body and after chilling, a transient elimination of albumin for which the kidney is merely the outlet without being responsible for its production. This regulatory albuminuria is also liable to be observed, he says, with diarrhea, with anemia in the young and with amyloid degeneration, the loss of fluids leaving an excess of albumin in the blood which is then thrown off through the kidneys. The albuminuria in these cases is often attributed to kidney disease, but the normal amounts of urine and lack of uremic brain symptoms speak against this. It is a grave mistake, he declares, to treat an anemic young patient as for a tuberculous kidney disease when quite other measures are needed. The kidneys rarely seem to suffer from the task of eliminating the extra amounts of albumin with these regulatory processes unless the albuminuria is intense and long continued, as in diabetes.

Medizinische Klinik, Berlin

July 31, VI, No. 31, pp. 1205-1244 and Supplement

122 *Neuropathology of the Eyes in Psychoses. V. Kafka.

123 *Surgical Orthopedic Treatment of Infantile Spinal Paralysis. (Behandlung der spinalen Kinderlähmung.) F. Wette.

124 Kefir in Infant Feeding. (Weiteres über Kefirmilch als Säuglingsnahrung.) K. Dresler.

125 Elasto-Massage. A. Schnee. Commenced in No. 30.

126 Perforation Outward of Gall-Stones. (Beitrag zur Selbstheilung bei Gallensteinen.) F. Fischer.

127 *Hyperemia in Internal Medicine. (Physikalische Therapie in der Internen Medizin.) Weidenbaum.

128 Operative Treatment of Paralysis of the Biceps. (Die Möglichkeiten der operativen Behandlung der Lähmung des Musculus biceps brachii.) K. Lengfellner and F. Frohse.

129 Influence of Potassium Iodid on Wassermann Reaction. (Einfluss der Jodkalibehandlung auf die Wassermannsche Reaktion.) E. Bizzozero.

130 Pathology of the Teeth and the General Practitioner. (Was muss der praktische Arzt von den Zahnkrankheiten wissen?) Williger.

122. **Neuropathology of the Eyes in Psychoses.**—In the first case described the visual field became restricted according to the hemianopsia type in the course of a hysterical disturbance with hallucinations, and yet the hemianopsia was merely functional. It could be influenced by suggestion but always returned to the former type. In the second case total rigidity of the pupils was observed in a young drunken man, the intoxication having been induced by a small amount of alcohol after emotional stress. This transient rigidity of the pupils was also observed during the alcohol intoxication of an imbecile young man.

123. **Surgical-Orthopedic Treatment of Infantile Spinal Paralysis.**—Wette remarks that the results of treatment are better the simpler the method of correction used and the greater the attention that is paid to the after-treatment. In some cases it is necessary to wear the correcting apparatus for years after the operation to ensure a permanent and complete cure. Fixation is always necessary for at least three months.

127. **Hyperemia in Internal Diseases.**—Weidenbaum has been applying constriction or suction hyperemia as a routine measure in treatment of gall-stone and liver troubles, sciatica, leg ulcer and asthma during the last five years, and has been much gratified with the good effects obtained. In more than 100 cases of gall-stone and catarrhal liver enlargement, the application of a large suction bell over the liver region gave almost immediate relief, the pains and the swelling of the liver rapidly subsiding. The effect is very striking in gall-stone colic, the whole attack being aborted by the action of the large cupping glass, so that now he always applies the suction bell or hot air box before giving morphin even in the severest attacks from gall-stones or kidney stones; it frequently renders the sedative unnecessary. In some cases the pain increases under the suction bell, and the temperature rises; when this occurs the trouble is invariably empyema of the gall-bladder, and this differentiates the condition at once. The superheated air box answers the same purpose as the cupping bell and is preferable for nervous patients or when the skin is sensitive. With kidney-stone colic and sciatica the suction bell gives the greatest relief, the bell being pressed firmly down over the kidney or the sciatic foramen. In a number of cases of diabetic polyneuritis in which the pains had resisted all other measures, they subsided under a constricting band. Great care is necessary to keep changing the position of the band, moving it up or down and constantly instructing the patient to warn of the slightest sensation of discomfort, as otherwise decubitus might develop under the band. Notwithstanding this grave danger, he asserts that the great service rendered by the band in some cases justifies its use. In a typical case of this kind a woman of 54 with arteriosclerosis, advanced diabetes and cardiac insufficiency, had suffered for six months from severe polyneuritis and diabetic xanthoma. The incessant pains and sleeplessness and the medicines she had been taking during this time, as she was constantly under the care of eminent authorities in metabolic disturbances, had reduced the patient to such an extent that she was unable to leave her bed. At once on application of the constricting band the pain subsided and she had a good night's sleep, the first in months. By the fifth week the polyneuritis had disappeared and with it the xanthoma. A recurrence a year later disappeared again in the same way under the same measures. The xanthoma had been most pronounced on the back in this case and its subsidence confirms Bier's claim that the hyperemic treatment stimulates blood production in remote parts. The hot air box may be preferable for diabetic gangrene; he has had good results from its use for this purpose, as also for old rebellious leg ulcers. An extensive leg ulcer on a patient with a mild form of diabetes had resisted all treatment for years, but healed in 5 weeks under superheated air treatment. When only a single limb is to be treated, he applies the hot air

box now for all cases of diabetic neuritis and neuralgia. The suction bells have also proved effectual in relieving respiratory disturbances. Several large cupping glasses applied between the shoulder blades gave relief at once in cases of bronchial asthma, emphysema of the lung and dyspnea from cardiac insufficiency; and essential improvement followed systematically continuing this treatment. In a case of uremia it proved possible by this means to check effectually the dyspnea and convulsions.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXI, No. 5, pp. 729-930. Last indexed June 25, p. 2111

- 131 Lymphocytosis of the Blood with Exophthalmic and Other Goiter. (Ueber Lymphocytose des Blutes bei Basedow und Struma.) M. Kappis.
- 132 *Peptic Ulcer in the Esophagus. M. Kappis.
- 133 *The Question of Surgical Treatment of Exophthalmic Goiter. (Zur Frage der chirurgischen Behandlung des Morbus Basedowii.) H. Leischner and O. Marburg.
- 134 *Syphilis of the Spine and Base of the Skull. (Zur Kenntnis der Syphilis der Wirbelsäule und der Basis cranii.) K. Petren.
- 135 Treatment of Disease in the Lower Large Intestine. (Zur Behandlung der Erkrankungen des unteren Dickdarmes.) E. Rosenberg.
- 136 *Latent Stenosis of the Pylorus. R. Dahl.
- 137 *Unilateral Suppurative Hematogenous Nephritis and its Treatment. E. W. Baum.
- 138 Cartilaginous Tumors of the Bronchi. (Klinische Bedeutung der Bronchialechondrosen.) Blecher.
- 139 *Operative Treatment in Benign Gastric Disease. (Zur Chirurgie der gutartigen Magenkrankungen.) V. Lieblein.
- 140 The Aired Air with the Drop Technique of Its Importance and Prevention. (Die Aired Air, ihre Bedeutung und ihre Verhütung.) M. Hoffmann.
- 141 Traumatic Polyuria. E. Schümann.
- 142 Appendicitis as Factor in Inflammation in the Biliary Apparatus and in Cholelithiasis. (Appendicitis in der Genese der Entzündung der Gallenwege und der Cholelithiasis.) Weber.

132. Peptic Ulcer in the Esophagus.—Kappis reports a personal case and compares it with fourteen on record in which the peptic ulcer was confirmed by autopsy. None of the cases had been correctly diagnosed which is not surprising as in only five cases were there any symptoms on the part of the esophagus, pains or difficulty in swallowing and in three of these gastric disturbances predominated. Regurgitated gastric juice or islands of gastric mucosa aberrant in the esophagus and secreting a peptic juice seem to have cooperated in some of the cases. Regurgitation of the gastric juice into the esophagus was favored by stenosis at the pylorus or duodenum or by hour-glass stomach in seven cases and in most of them the cardia was much enlarged. In eight of the fifteen cases there were coexistent gastric or duodenal ulcers. Dietetic measures should be instituted on suspicion of peptic ulcer in the esophagus or direct endoscopic local treatment. The most effectual measure, however, is prompt gastrectomy which rests the esophagus and gives it a chance to heal, thus warding off impending hemorrhage or perforation. An important point, however, is that peptic ulcer of the esophagus is generally secondary to some lesion elsewhere and removal of the primary cause is essential.

133. Operative Treatment of Exophthalmic Goiter.—Leischner and Marburg discuss this question on the basis of forty-five cases in which an operation was done in the university clinic at Vienna in charge of von Eiselsberg. Persistent large thymus was responsible for one of the five fatalities, the status thymicus being accompanied by severe degeneration of the heart. Pneumonia in a tuberculous and much debilitated woman of 46 proved fatal in another case and recurring apoplexy in another. The fifth fatality was in a case of advanced heart disease, compression from the enlarged thyroid compelling operative treatment as a last resort. Among the cured patients were some with persisting thymus which is thus seen to be not a contraindication for operative treatment, unless complicated with heart disease or cachexia. Removal of half of the goiter is the preferred technic; the arteries are not ligated unless the patient is much debilitated. The conclusions are that operative treatment is indicated with compression and for social motives but only relatively indicated with cachexia increasing refractory to treatment or subjective disturbances becoming unbearable.

134. Syphilitic Disease of the Spine and Base of the Skull.—In Petren's first case the syphilis induced caries of the second cervical vertebra and likewise a recurring meningeal affection mostly localized in the vicinity of the syphilitic bone process. In two other cases the localization of the bone process was about the same, as also in forty-two cases he found on record. It seems evident that the cervical vertebrae afford a predisposition for the localization of syphilis. In seventeen of the cases a complete cure was realized by appropriate measures against the syphilis. In the thirteen fatal cases there had been scarcely any attempt at specific treatment. It was noticed in some of the cases that the pains and tenderness were predominantly or exclusively on one side which may possibly help to differentiate this affection from rheumatic disturbances. The Roentgen rays first suggested the possibility of caries of the base of the skull, and then certain neurologic phenomena in some of the cases.

136. Latent Stenosis of the Pylorus.—A similar article by this author was summarized in THE JOURNAL, May 21, 1910, p. 1732.

137. Unilateral Suppurating Nephritis.—Baum applied nephrotomy in the 3 cases of acute hematogenous nephritis described. Recovery was not only prompt and complete but functional tests of the kidneys nearly a year later showed practically complete recuperation. The chief danger of conservative surgical treatment is that the bacteriuria is left and it may prove a source of infection. In one of his cases the other kidney became involved and presented a transient syndrome indicating brief mild infection. Hessert, however, has reported a case in which even nephrectomy did not protect the remaining kidney from secondary infection.

139. Surgery of Non-Malignant Stomach Disease.—Lieblein has operated in 15 cases in the last 5 years including 3 of perforation. His experience teaches that gastroenterostomy is still the best method of treatment in cases of open gastric ulcer when there is no suspicion of cancer. Careful and prolonged internal treatment is required after the operation, sometimes a long interval elapsing before the clinical cure. The ulcers at the pylorus, even those of a callous or penetrating character, indicate gastroenterostomy rather than resection, but the tendency to cancerous degeneration displayed by ulcers in the lesser curvature or rear wall of the stomach imposes more radical measures, transverse resection of the stomach or typical pylorotomy. Cancerous degeneration followed in 2 of his cases of this kind, and in future he will be more radical in operating. The callous and penetrating ulcers generally had caused symptoms for years, and the comparative harmlessness of operative treatment in this class of cases and the good results justify, he thinks, an earlier resort to surgery.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

July, XXXII, No. 1, pp. 1-123

- 143 Treatment of Extensive Uterine Prolapse by Abdominal Total Hysterectomy. Ventrofixation of Vaginal Vault and Colporrhaphy. O. Küstner.
- 144 Treatment of Clit Pelvis with Total Exstrophy of the Bladder in Woman of 34. (Fall von Spaltbecken mit Ectopia vesicalls totalis.) L. Mohr.
- 145 *Allowing Patients to Get Up Early After Laparotomies. (Frühauftreten Operierter und Thrombophlebitis.) F. Schweninger.
- 146 Cause of Development of Amniotic Bands. (Zur Kenntnis der Entstehungsursachen amniotischer Stränge.) F. Haase.
- 147 Velamentous Attachment of Umbilical Cord. (Zur Klinik der Insertio velamentosa funiculi umbilicalis.) M. Fetzer.
- 148 *Tearing of the Uterus after Cesarean Section. (Zerreibungen der Gebärmutter nach Kaiserschnitt.) A. Dahlmann.
- 149 Two Cases of Axial Torsion of the Uterus. (Achsendrehung des Uterus.) J. Olow.

145. Prevention of Postoperative Thrombophlebitis.—Schweninger states that 22 cases of femoral thrombophlebitis were encountered in the total 1,315 patients operated on between 1905 and 1909 at the Munich polyclinic for women's diseases, and study of these cases emphasizes the importance of toning up the system before undertaking any serious operation. Even at the best, a major operation, he remarks, must be regarded as a serious trauma and a grave danger for which the organism must be prepared. Flabby tissues should be toned up if possible beforehand, and for this it is not enough to send the patient to the country to follow her own inclinations—in many cases the trouble in question is the conse-

quence of an irrational mode of life. The patient should be under medical care and diet, massage and hydrotherapy should be applied systematically under the physician's directions. The after-treatment should be graduated to the patient's general condition: passive stimulating treatment during recumbency, frequent change of position, massage, sponging off and cool sleeping; then more active measures, the patient still being kept recumbent, and finally active measures out of bed, walking, breathing exercises, etc., in progressive dosage. Under all circumstances it must be borne in mind, he adds, that standing still, erect, is the most injurious position for the circulation and should be avoided the longest.

148. Rupture of the Cicatrix after Cesarean Section.—Dahlmann reports 3 cases of this accident and has collected 23 from the literature. In 17 of the cases the pelvis was much contracted, and in 2 there was a tumor. In 10 cases the incision had been median, in 12 transverse. The chief factor inducing conditions favoring rupture later is the lack of primary healing of the Cesarean wound. In 20 of the 23 cases in which the outcome is mentioned, the mothers were saved but only 5 of the children in 22 cases.

Monatsschrift für Kinderheilkunde, Leipsic

IX, No. 3, pp. 131-200. Last indexed August 6, p. 542

- 150 *Rachitis. (Die erste Vorlesung in Strassburg, May 9, 1910.) A. Czerny.
- 151 Apparent Flaring up of Local Tuberculin Reaction During Measles. (Scheinbares Aufflammen abgelaufener Tuberkulinreaktionen während der Eruption von Masern.) B. Schick.
- 152 *Experiences with "Albumin Milk" in Infant Feeding. (Ueber Ernährungsversuche mit Eiweissmilch.) W. Birk.
- 153 Milk Sugar Better Avoided in Infant Feeding. (Welcher Wert hat Milchzucker für die Ernährung der Säuglinge.) R. Weigert.
- 154 Parallel or Varying Development of Twins after Intercurrent Disease. (Beobachtungen an Zwillingen.) A. Orgler.
- 155 Treatment of Furunculosis in Infants. H. Vogt.
- 156 Influence of Heat on the Temperature of Infants. (Einfluss der Wärme auf die Temperatur der Säuglinge.) G. Gener-sich.

150. Rachitis.—Czerny defines rachitis as a congenital constitutional anomaly whose most prominent symptom is the change in the bones and cartilages. There is evidently a general nutritional disturbance affecting the bones and inducing symptoms on the part of the nervous system. The latter may even be the primary trouble. Lack of sufficient lime in the food is evidently a factor in the syndrome, and this may occur even with breast feeding if the child did not bring an ample supply of lime with it into the world. Dietetic treatment in time has an essential influence on the course of rachitis.

152. Albumin-Milk in Infant Feeding.—The formula for Finkelstein's sugar-poor mixture was given in these columns, July 2, page 93. Birk reports its use in 30 cases, his experience confirming that of others in regard to its doing good service in acute and chronic alimentary disturbances. By thus reducing the proportion of sugar and restricting fermentations in the intestine, the infant's tolerance for fat is increased.

Münchener medizinische Wochenschrift

July 26, LVII, No. 30, pp. 1577-1624

- 157 Experimental Alimentary Calcification of the Arteries. (Alimentäre Schlagadervverkalkung.) O. Lubarsch.
- 158 Experiences with Ehrlich's "606," Dioxydiamido-arsenobenzol. H. Loeb.
- 159 Improved Technic for the Wassermann Reaction. (Erweiterte Wassermannsche Methode zur Differentialdiagnose zwischen Lues cerebrospinalis und multipler Sklerose.) A. Hauptmann.
- 160 *Epidemic Cerebrospinal Meningitis and Germ Carriers. (Ueber Gekickstarre, besonders die Keimträgerfrage.) G. Mayer, A. Waldmann, T. Fürst and G. B. Gruber.
- 161 Roentgen-Ray Diagnosis of Ulceration in the Middle Stomach Region. M. Haudek.
- 162 Acute Internal Hemorrhage in the Suprarenals. (Die Apoplexie der Nebenniere.) S. Brodnitz.
- 163 The Psychology of Juvenile Criminals in Cities. (Zur Psychologie des jugendlichen Verbrechers der Grosstadt.) K. Rupprecht.

160. Germ Carriers and Epidemic Meningitis.—An unusually extensive and painstaking bacteriologic examination was made of the troops in garrison at Munich to determine the prevalence of healthy carriers of meningococci. There had been an epidemic of cerebrospinal meningitis in the garrison

the year before. It was found that nearly 2 per cent. of the 9,111 healthy men examined once harbored the germs and they were found in 2.46 per cent. of 1,911 examined a second time. From these findings in 11,022 healthy persons it seems evident that the germ is ubiquitous both during and outside of epidemics. Study of the epidemic there and of epidemics elsewhere seems to demonstrate that the epidemics die out spontaneously, regardless of what measures may be taken against them beyond the indispensable institutional isolation of the sick and general hygienic measures. It seems hopeless, the authors say, to attempt to control the disease on the same principles as typhoid and cholera are controlled, the conditions being so different.

Virchows Archiv, Berlin

July, CCI, No. 1, pp. 1-160

- 164 Cause of Death after Intravenous Injection of Alien Serum. (Todesursache nach intravenöser Injection von artfremdem Blutserum.) L. Loeb, A. Strickler and L. Tuttle.
- 165 Vital Staining of the Embryo. S. Zaretzky.
- 166 Systematic Measurements of Lumen and Thickness of the Large Arteries. (Systematische Lichtungs- und Dickenmessungen der grossen Arterien und ihre Bedeutung für die Pathologie der Gefässe.) K. Iwakichi.
- 167 Conditions Entailing Thrombi and Necrosis of the Liver after Intravenous Injection of Ether. (Zur Analyse der Entstehungsbedingungen der Thromben und Lebernekrosen nach intravenöser Injektion von Aether.) L. Loeb and M. K. Meyers.
- 168 Histologic Determination of Acidosis. O. H. Petersen.
- 169 Fibrosis of the Testicle. (Ueber Fibrosis testis.) M. Simmonds.
- 170 Pathology of the Esophagus. W. Kern.

Wiener klinische Wochenschrift, Vienna

July 23, XXIII, No. 30, pp. 1099-1130

- 171 *By-Effects with Ehrlich's "606." (Ueber unerwünschte Nebenerscheinungen nach Anwendung von Dioxydiamido-arsenobenzol [606] Ehrlich-Flata.) K. Bohac and P. Sobotka.
- 172 The Melostagmin Reaction with Cancer. (Zum Studium der Melostagminreaktion bei bösartigen Geschwülsten.) S. Verson.
- 173 Determination of Intensity of Putrefaction Processes in the Intestines. (Studien über Darmfäulnis.) A. Rodella.
- 174 *Graphic Registration of Deformities. (Ein einfaches und einwandfreies Verfahren zur bildlichen Darstellung von Deformitäten, speziell der Skoliose.) O. Semeleder.
- 175 Case of Simultaneous Tabetic Gastric Crises and Tetany. W. Buettner.

171. By-Effects with Ehrlich's "606."—Bohac and Sobotka report the occurrence of a set of symptoms in 3 out of 14 patients being treated with Ehrlich's new remedy for syphilis. These unexpected by-effects were retention of urine for from half a day to over 9 days, abolition of the knee-jerk and of other common reflexes and extreme rectal tenesmus with tenacious constipation. This syndrome occurred in a more or less pronounced form in these 3 patients with moderate doses, suggesting that the symptoms might have been alarming if the dose had been a little larger, as they indicated a paralysis or inhibition of certain nervous elements. The syndrome resembled that observed in some cases after administration of atoxyl, but impurities in the drug may have been responsible for it. The experiences related are from the dermatologic clinic at Prague in charge of Kreibich. In other respects the experiences confirmed the claims made for the new remedy by Ehrlich and others. And notwithstanding the untoward by-effects observed in 3 out of the 14 cases, the clinic does not intend to abandon the use of the remedy but will reserve it for the cases in which the ordinary measures are contraindicated for any reason or have failed completely. It will also be used in cases in which the pains or malignant character of the disease, threatening serious functional disturbances or disfigurement as from numerous localizations of malignant syphilis, compel urgent measures—the patient being always fully informed as to the dangers and "untriedness" of the new method of treatment.

174. Simple Method of Estimating and Recording Deformities.—The lack of a simple method for recording the extent and the changes in scoliosis and other deformities has long been felt by orthopedists. Semeleder has found a stripe technic a reliable means of tracing the progress of the patient under treatment and of impressing the patients and their friends with the necessity for treatment or its continuance. The patient stands against a wall and the shadows of a number of horizontal lines are thrown on his body as a photo-

graph is taken. On a plane surface the stripes are even and straight but on the body they assume fantastic curves, bringing into prominence any deviation from symmetry. He has the camera mounted on a frame on a level with the

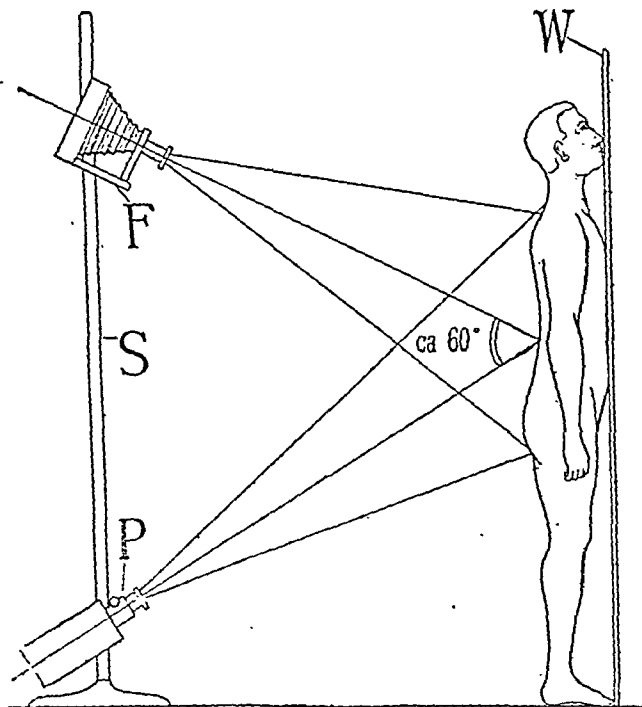


Fig. 1.—W, wall; F, camera; P, light, with lines on slide; S, Standard on which the camera and lantern pivot.

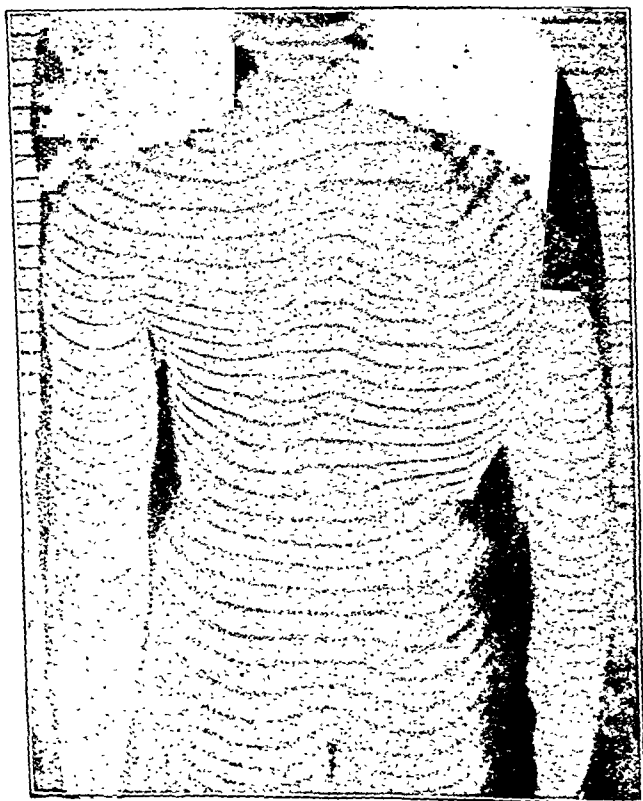


Fig. 2.—Lines thrown on patient's back.

patient's head; the light throwing the shadow of the lines is mounted on the same frame near the floor, each pivoting so that the axial center lines from each meet at the center of the area to be photographed.

Zeitschrift für Urologie, Berlin

July, IV, No. 7, pp. 481-560

- 176 Concrements in Male Urethra and Bladder. (Einige Konkretionen der unteren Harnwege.) C. Adrian.
- 177 Implantation of the Ureters in the Rectum. (Zur Technik der Ureterenüberpflanzung in den Mastdarm.) S. R. Mikotworzeff.
- 178 *Trabeculae in Bladder Wall as Early Sign of Tabes. (Die Balkenblase als Frühsymptom bei Tabes dorsalis.) R. Frohnstein.
- 179 Sterilization and Drying of Catheters. (Sterile und trockene Katheter.) W. H. Dreuw.
- 180 Occurrence of Urinary Concrements in Finland. (Vorkommen von Harnsteinen in Finnland.) G. Renvall.

178. Hypertrophy of Bladder Trabeculae as Early Sign of Tabes.—Frohnstein examined the bladders of 20 patients at Moscow with unmistakable or suspected tabes and found that the walls of the organ showed signs of excessive muscular effort in every case of tabes. Sometimes this was the first sign of the disease, the course later confirming its specific character. As the bladder has to make more of an effort to void its contents on account of the encroaching spinal cord disease, the walls develop ridges like beams. These beams in tabes are delicate but regular and are found on both the side walls and fundus. The sensory paralysis of the bladder mucosa weakens the impulse to empty the bladder; urine accumulates and dilates the bladder and the walls hypertrophy from the compensating extra muscular effort required.

Zentralblatt für Gynäkologie, Leipsic

July 30, XXXVII, No. 31, pp. 1009-1032

- 181 Experimental Anaphylactic Research on Exophthalmic Goiter. (Experimentelles zum Wesen der Basedowkrankheit.) G. Wolfsohn.

Zentralblatt für Gynäkologie, Leipsic

July 30, XXXIV, No. 31, pp. 1041-1072

- 182 *Circular of Instructions for Parturients. (Ein Flugblatt für Wöchnerinnen.) J. Reich.
- 183 Danger of Rupture of Uterus after Cervical Section. (Zur Frage von der Uterusrupturgefahr nach dem cervikalen Uterusschnitt.) J. Olow.
- 184 Origin of Mucocellular Ovarian Fibrosarcoma. (Zur Histogenese der sogenannten Krukenberg'schen Eierstockgeschwülste.) K. Ulesko-Stroganoff.

182. Circular for Parturients.—Reich reproduces the circular which is handed to each woman on leaving the maternity after childbirth. It gives from 6 to 8 paragraphs of directions "For the Mother" and "For the Baby," commencing with the statement that the "confinement" lasts from 4 to 6 weeks, not merely the few days the woman is in the hospital. It adds that during these weeks the woman is especially liable to take cold, to bleed, to contract diseases and to have the womb get out of place. At the least sign of a chill, passage of pure blood or abdominal pain she must apply for medical aid without delay. The most dangerous consequences are liable to follow resumption of conjugal intercourse before the end of the fourth to sixth week.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 24, XXXI, No. 38, pp. 921-936

- 185 Extraperitoneal Treatment of Fistulas. (I nuovi metodi extraperitoneali nella cura delle fistole.) F. Bindi.
- 186 Advantages of Venesection for Certain Climacteric Disturbances. (Utilità del salasso in alcuni disturbi della menopausa.) G. Giovanni.

Policlinico, Rome

July 24, XVII, No. 30, pp. 931-962

- 187 Experimental Research on Anaphylaxis from Cellular Endotoxins. G. Breccia.
- 188 *Masked Tuberculosis. (Le tubercolosi larvate.) G. Jona.

188. Masked Tuberculosis.—Jona discusses the various forms of what he calls "masked" tuberculosis, the healed and latent forms, the complicating and the obscure and especially the form with jaundice which nothing but tuberculosis can explain. The form in which tuberculous infection of the glands simulates a febrile pseudoleukemia is not so rare as the scorbutic form; he has encountered a number of examples of each. In a case of the latter reported by Senator there was nothing during life to suggest the tuberculous nature of the scorbutus and autopsy alone showed that the tuberculosis was not only the predisposing but the essential factor in the scorbutus. Several similar cases have been

reported since. Jona has had 4 patients in his charge with tuberculosis inducing jaundice. This syndrome developed in a child of 8 with irregular fever, headache and great prostration for a month with increasing jaundice and diarrhea, but autopsy showed the liver and bile passages in comparatively normal condition and the latter unobstructed. In another case the jaundice developed during the last week of an acute miliary tuberculosis. In another case the jaundice persisted for two years and the liver was much enlarged. Autopsy disclosed tuberculous cheesy glands and amyloid liver but the lungs were nearly intact. There had been no suspicion of tuberculosis in this case, all the signs pointing to the liver. This tuberculous jaundice is the result of great destruction of red corpuscles by the toxins, the hemolysis being evident in the gorged phagocytes crowding the liver and spleen. Even a concomitant cirrhosis of the liver is not necessarily responsible for the jaundice.

Riforma Medica, Naples

July 4, XXVI, No. 27, pp. 729-756

- 189 The Gastric Flora in Normal and Pathologic Conditions. G. Florito.
- 190 Favorable Experiences with Vein Anesthesia in 16 Cases. (Sull' anestesia per via endovenosa secondo Bier.) C. Mantelli.
- 191 Relations between Pseudoleukemia and Glandular Tuberculosis. V. Gaudiani.

July 11, No. 28, pp. 757-784

- 192 Cerebellar Syndrome and Disturbances in Speech of Malarial Origin. G. Rummo.
- 193 Anatomic Diagnosis of Congenital Endocarditic Pulmonary Stenosis. G. Pollaci.

Norsk Magazin for Lægevidenskaben, Christiania

July, LXXI, No. 7, pp. 657-784

- 194 *Case of Congenital Myxedema with Improvement under Thyroid Treatment. (Infantilt medfødt myxødem: myxidioti.) C. Døderlein.
- 195 *Chemical Examination of Urine in Diabetes. C. Geelmuyden.
- 196 *Review of 113 Cases of Mammary Cancer. (Bidrag til mamma-carcinomernes statistik.) N. Paus.
- 197 Importance of Experimental Pathology for Study of General Biologic Phenomena. M. Haaland.

194. Congenital Myxedema.—Døderlein's case is a striking example of the peculiar, far-reaching importance of the thyroid for the physical and mental growth and development, and the lack of both with lack of thyroid functioning. The child was born with typical pure myxedema and at the age of 4 looked still like a 10-months babe, being a pronounced idiot. No traces of the thyroid could be discovered on palpation. Thyroid treatment was then commenced and in 3 months the child was transformed under its influence, it had grown 10 cm. in height and has developed normally since, and is now lively and healthy.

195. Chemical Examination of the Urine in Diabetes.—Geelmuyden emphasizes the importance of estimating the degree of auto-intoxication in diabetes by examining the urine, and reiterates that the tests for acetone and oxybutyric acid are too complicated for general use. The proportion of ammonia, however, is readily determined, and is a reliable index of the acidosis and thus a faithful guide to treatment.

196. Mammary Cancer.—Paus analyzes the experiences of 16 years with cancer of the breast, a total of 113 cases; 37 non-malignant mammary tumors were also encountered during this period. In the 113 cancer cases, 68.8 per cent. of the women were married and from 14 to 21.9 per cent. had had over 6 children. In 2 cases the tumor was first observed during lactation and in another case during a pregnancy. The ultimate outcome is known in 70 cases and 20.3 per cent. of these patients have been free from recurrence for over 5 years since the removal of the cancer; 31.4 per cent. for over 3 years. The recurrence was local in 60.4 per cent. of the 53 recurring cases; 27 in the first, 1 in the second and 4 in the third year. Rheumatoid pains after the third year were the first signs of metastasis in one case, but with nothing to suggest their malignant origin for another year. Only one of the patients was a man. He was a laboring man of 31, who first noticed the lump in his chest at the age of 15. It gradually increased to the size of an egg but caused no symptoms until a contusion of the chest started it to rapid growth and it was found inoperable 3 months later. The prognosis of mammary scirrhus is better than that of carcinoma. Paus'

advice is to remove every tumor in the breast at once, whether malignant or not. "Rather no breast than a cancer breast," he quotes. He tabulates his material from various standpoints and compares it with that of others.

Ugeskrift for Læger, Copenhagen

July 21, LXXII, No. 29, pp. 859-884

- 198 *Cancer of the Throat. (Kliniske Bidrag til Strubekræftens Patologi.) E. Schmiegelow. Commenced in No. 28.

198. Cancer of the Throat.—Schmiegelow entreats the general practitioner to appreciate the fact that there are very few organs in the body from which cancer—diagnosed in time—can be removed with as good prospects of a complete cure as from the throat. He has encountered 48 cases of primary endolaryngeal cancer, the patients all male but 8, and all were over 40 except one woman in the twenties and one man and one woman in the thirties. The growth was in the vocal cords in the majority, and hoarseness was the first symptom to call attention to the throat in 37 cases. As a rule the hoarseness developed gradually but in a few cases it came on acutely with a catarrhal laryngitis and after a series of remissions became chronic. Even in the laryngoscope the picture may be apparently that of an ordinary chronic catarrhal affection. A tuberculous infiltration of the vocal cord may also deceptively simulate cancer. He has had several such cases in which no signs of tuberculosis could be detected elsewhere and the tuberculous nature of the process was distinguished only by microscopic examination of an excised scrap of the tumor. In 25 of his cases the cancer was differentiated in this way; in the others the disease was at a stage beyond all doubt. The excised scrap must be taken deep enough to be truly characteristic. In 2 there was both a cancer and a benign growth in the same throat. Seven of the 20 patients whose laryngeal cancer was removed by thyrotomy from 1 to 10 years ago are still living; another died of tuberculosis 4 years after the operation; another of gastric cancer after 8 years, and another of rectal cancer after 17 years. The proportion of permanent cures without local metastasis was thus 50 per cent. in the thyrotomy cases; 20 per cent. of the 5 cancers removed by the endolaryngeal route, and 20 per cent. of the 5 removed by total resection of the larynx. Thyrotomy may be regarded as an efficient means of curing cancer in the larynx if diagnosed early. The endolaryngeal route exposes too much to local recurrences later. In one of his cases the local recurrence did not develop until after an interval of 7 years, and the man is still living, 3 years later, but the growth is now inoperable. Age is no contraindication to thyrotomy. One of his patients was a man of 71 who is still in good health 4½ years after the thyrotomy.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

MENTALLY DEFICIENT CHILDREN: THEIR TREATMENT AND TRAINING. By G. E. Shuttleworth, B.A., M.D., Medical Examiner of Defective Children to the Willesden Education Committee, and formerly to the School Board for London, etc., and W. A. Potts, B.A., M.D., Consulting Medical Officer, National Association for the Feeble-Minded, etc. Cloth. Price \$2 net. Pp. 236, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

THE HARVEY LECTURES. Delivered under the auspices of the Harvey Society of New York 1908-09. By Prof. A. Calmette, Prof. W. G. MacCallum, Prof. Graham Lusk, Prof. W. Faltu, Dr. John F. Anderson, Dr. M. J. Rosenau, Prof. A. B. MacCallum, Prof. J. B. Leathes, Prof. Philip Hanson Hiss, Jr., Dr. C. B. Davenport. Cloth. Price, \$2. Philadelphia and London: J. B. Lippincott Co., 1910.

THE SANITARY PRIVY: ITS PURPOSE AND CONSTRUCTION. By Ch. Wardell Stiles, Ph.D., Professor of Zoology, Hygienic Laboratory, Public Health Bull. 37, U. S. P. H. and M. H.-S. Treasury Dept. Paper. Pp. 24, with 12 illustrations. Washington: [Superintendent of Documents] Government Printing Office, 1910.

MICHAEL SERVETUS. HIS LIFE AND TEACHINGS. By Carl Theophilus Odhner, Professor of Church History, Academy of the New Church, Bryn Athyn, Pa. Cloth. Price 50 cents. Pp. 96, with illustrations. Philadelphia: J. B. Lippincott Co., 1910.

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LICHEN PLANUS SCLEROSUS ET ATROPHICUS (HALLOPEAU)

A REPORT OF SIX CASES (FIVE NEW) WITH A REVIEW OF THE LITERATURE*

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The literature of this subject betrays some confusion as to what is meant by the term "lichen planus sclerosus et atrophicus."

Hallopeau first described this condition, named it "lichen planus atrophicus," and later added the word "sclerosus" to the title. Crocker added the word "morphæacus" on account of the resemblance in certain instances to morphea. That the disease resembles morphea to a marked degree is evidenced in the cases of Stowers, Allen, Schamburg, and others. These patients, when exhibited before dermatologic societies, were considered by some to be instances of lichen planus sclerosus et atrophicus, while others classed them as morphea.

There are some cases recorded under this title that appear to be of the ordinary lichen planus type, exhibiting subsequent atrophy of papules, leaving white atrophic spots. These are not examples of the type to be described here.

In 1887 Hallopeau¹ described the first case, and subsequently added three, one in 1889,² another in 1896,³ and a fourth in 1898.⁴ The histopathology of Hallopeau's first case was studied and reported by Darier; and subsequent observers have confirmed the original clinical and histologic descriptions of these two authors.

In 1892 Darier⁵ fully described a similar case of his own.

In 1900 Crocker⁶ transcribed notes taken by himself of a case presented by Marrant Baker before the London Dermatological Society, in 1882. In a chronologic order other recorded cases are the following: 1894, Brault⁷ and Pawlow;⁸ 1895, Gaucher, Barbe and Balli,⁹ and

Schwimmer¹⁰; 1896, Stowers,¹¹ Vinrace¹²; 1898, Vollmer¹³; 1899, Orbeck¹⁴; 1900, Zarubin¹⁵; 1903, Reiss,¹⁶ and Wechselmann¹⁷; 1905, Allen¹⁸; 1906, von Zumbusch¹⁹; 1907, Montgomery and Ormsby,²⁰ Schamburg²¹; 1909, Hoffman,²² Riecke,²³ Millian,²⁴ and Csillag.²⁵ The majority of the above cases are typical; the exceptions will be discussed later.

SYMPTOM-COMPLEX

The symptom-complex constituting the disorder as originally outlined by Hallopeau and confirmed by numerous observations since, includes the following:

The major portion of patients have been women varying in age from 30 to 63 years. They have usually been of nervous temperament. No other important fact has been demonstrated relative to the etiology. The sites of predilection are the upper portions of the trunk, about the breasts, over the clavicles, extending over the shoulders and downward over the upper part of the back, also the neck, axillæ, and forearms. Lesions also have been noted over the abdomen, on the thighs, about the vulva; and coincident lesions were noted by Hallopeau on the buccal mucosa, and in one case in this report, on the vaginal mucosa. The temple was affected in one of the atypical cases. (Dubreuilh and Petges).²⁶

The characteristic lesion is an irregular, often polygonal, flat-topped, white papule. In the case of Marrant Baker, some conical papules were noted. The white

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Hallopeau: Lichen Planus Atrophicus, *Union méd.*, 1887; abstract by Thibierge, *Ann. de dermat. et de syph.*, 1887, Series 2, viii, 790.

2. Hallopeau: Lichen Planus Sclerosus, *Ann. de dermat. et de syph.*, 1889, Series 2, x, 447.

3. Hallopeau: Lichen Planus Atrophicus: a New Case, *Ann. de dermat. et de syph.*, 1896, Series 3, vii, 57.

4. Hallopeau: Lichen Planus Sclerosus: a New Case, *Ann. de dermat. et de syph.*, 1898, Series 3, ix, 358.

5. Darier: Lichen Planus Sclerosus, *Ann. de dermat. et de syph.*, 1892, Series 3, iii, 833.

6. Crocker: Lichen Planus: Its Variations, Relations and Imitations, *British Jour. Dermat.*, 1900, xii, 421.

7. Brault, F.: Un cas de lichen plan symétrique à forme scléreuse amplifiée, *Ann. de dermat. et de syph.*, 1894, Series 3, v, 834.

8. Pawlow, T.: Ein Seltener Fall von Lichen scleroticus ruber atrophicus, abstr. in *Arch. f. Dermat. u. Syph.*, 1895, xxxii, 423.

9. Gaucher, Barbe et Balli: Lichen plan atrophique pigmenté, *Ann. de dermat. et de syph.*, 1895, Series 3, vi, 302.

10. Schwimmer, E.: Lichen ruber planus atrophicus, *Arch. f. Dermat. u. Syph.*, 1895, xxxiii, 451.

11. Stowers: Tr. Third Internat. Cong. of Dermat., 1896, p. 906.

12. Vinrace: Tr. Third Internat. Cong. of Dermat., 1896, p. 906.

13. Vollmer, E.: Ein Fall von Lichen planus ruber mit linearer Hautatrophie, *Dermat. Ztschr.*, 1898, v, 32.

14. Orbeck, W.: Lichen atrophicus und Vitiligo, *Arch. f. Dermat. u. Syph.*, 1899, i, 393.

15. Zarubin: Lichen atrophicus, *Arch. f. Dermat. u. Syph.*, 1900, li, 306.

16. Reiss, W.: Über atrophische Formen des Lichen planus, *Arch. f. Dermat. u. Syph.*, 1903, lxviii, 137.

17. Wechselmann: Lichen ruber atrophicus, *Arch. f. Dermat. u. Syph.*, 1903, lxviii, 446; Ueber Lichen atrophicus und andere makulose atrophien der Haut, *Arch. f. Dermat. u. Syph.*, 1904, cxxi, 333; Atrophoderma Erythematosa maculosa (Lichen planus atrophicus), *Dermat. Ztschr.*, 1904, xi, 28.

18. Allen: A Case of Lichen Planus Atrophicus, *Jour. Cutan. Dis.*, 1905, xxiii, 266.

19. Zumbusch, von: Lichen Albus, *Arch. f. Dermat. u. Syph.*, 1906, lxxxii, 339.

20. Montgomery and Ormsby: White-Spot Disease (Morphea Gut-tata) and Lichen Planus Sclerosus et Atrophicus, *Jour. Cutan. Dis.*, 1907, xxv, 1.

21. Schamburg: Lichen Atrophicus, *Jour. Cutan. Dis.*, 1907, p. 578.

22. Hoffman, E.: Ueber einen mehrere Jahre hindurch beobachteten Fall von Lichen Sclerosus, *Ikon. Dermat.*, 1909, Fasc. iv, Tab. xxvii-xxxv.

23. Riecke, E.: Zur Kenntnis der Weissfleckenkrankheit, *Arch. f. Dermat. u. Syph.*, 1909, xcix, 181.

24. Millan, M. Y.: Lichen plan atrophique ou mieux leucodermie atrophique ponctuée, *Bull. de la Soc. française de dermat. et de syph.*, 1909, No. 7, p. 279.

25. Csillag, J.: Dermatitis Lichenoides Chronica Atrophicus (Lichen Albus von Zumbusch), *Ikon. Dermat.*, 1909, No. 4, Tab. xxxii-xxxv, p. 147.

26. Ducreuilh and Petges: Lichen planus atrophicus, *Ann. de dermat. et de syph.*, 1907, Series 4, viii, 715. (A complete clinical report of a case with abstracts of seven other cases and a discussion of additional ones.)

color of lesions is striking and has been compared with that of ivory and mother-of-pearl. At times a distinct yellowish tinge is noted. The papules, as a rule, are firm to the touch, neither elevated nor depressed, but slight elevation may be present. They bend with the skin and when grouped may become wrinkled. As a rule, no areola is present, but at times a rosy or moderately pigmented zone surrounds the papule. They may be discrete or grouped and most cases present both types. When grouped to form plaques, the outline of the individual papules forming the plaques can be determined.

Each papule has on its shining, smooth surface from one to several (sometimes as many as twenty (Darier)) black or dark horny, comedo-like plugs, or minute pit-like depressions, which show the former site of the horny plugs. These elements are situated at the pilo-sebaceous or sweat-pore orifices, and are most important from the viewpoint of diagnosis. The wall of the pit-like depressions is of the same nature as the horny plug. The plaques vary in size up to several centimeters in diameter. They show on their surface the outlines of the primary papules containing the horny plugs, or exhibit minute depressions; and the whole plaque shows the peculiar shining white surface characteristic of the primary lesions. A linear arrangement of the papules

papillary and subpapillary layer of the corium. In general the resemblance in the histologic architecture between this condition and ordinary lichen planus is marked. The stratum corneum is thickened, as is also the stratum granulosum in most instances, while the rete is atrophied. The wavy line between the rete and the corium is straightened or obliterated. The entire upper portion of the corium shows marked collagenous hypertrophy. The collagen bundles are condensed and show less of the interlacing characteristics than usual. Very few connective tissue nuclei are present. The elastin is reduced in amount. A cellular infiltration is present, deeply in the corium, and moderately also about the vessels, glands and follicles. Horny plugs are described in the sweat-pores, extending into the ducts, and the latter show a condition of hyperkeratosis. Similar horny plugs have been described in connection with the pilo-sebaceous orifices.

From ordinary lichen planus this condition is distinguished by the presence of marked sclerosis in the upper part of the corium, and by deeper situation of the inflammatory process.



Fig. 1: Case 1.—Lichen planus sclerosus et atrophicus, showing discrete whitish papules and plaques with black horny points on the surface. Courtesy of Jour. Cutan. Dis.

is at times noted, similar to that seen in ordinary lichen ruber planus. There is, as a rule, no clinical sign of inflammation. The mode of development, as described by one of Hallopeau's patients, is as follows:

A black, horny point, surrounded by a bright red areola, is first noted. New and similar points occur which, after some months, unite; then the horny plug falls and the plaque becomes white.

My observations have not been similar, as I have seen new lesions developing, and the earliest manifestation consists of a minute white papule at the beginning, with either a dark spine or a pit on the surface.

The lesions, both papules and plaques, are persistent, but after a variable time, either from treatment or spontaneously, they undergo resolution and leave a delicate, smooth, white, soft, atrophic area of the size and shape of the original lesion, whether it be a discrete papule or a larger plaque. In one patient seen two years after complete involution of the lesions the atrophic scars were still present. The subjective sensations vary. Itching is the rule, but it is usually moderate in grade. A pulling or drawing sensation is described by some patients, while in others no subjective sensations are present.

HISTOPATHOLOGY

The changes described originally by Darier in Hallopeau's case have been confirmed by many observers. The most important change noted is a sclerosis of the

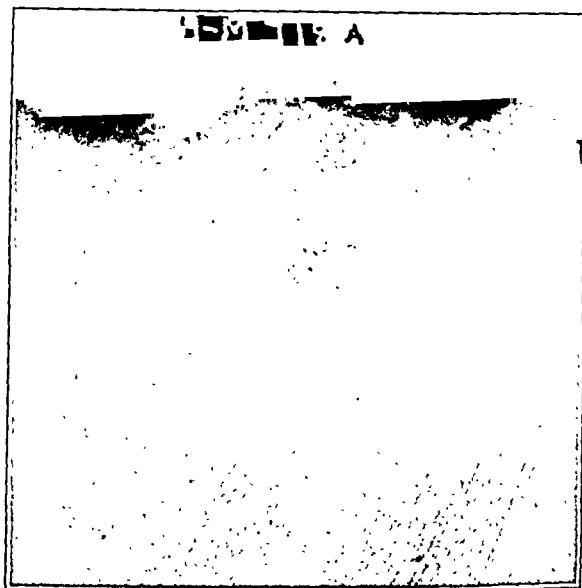


Fig. 2: Case 1.—Lichen planus sclerosus et atrophicus. Showing one plaque shown in Figure 1. Courtesy of Jour. Cutan. Dis.

DIAGNOSIS

The important point in differential diagnosis is to distinguish this disorder from morphea guttata or circumscribed scleroderma. Vitiligo and nevus anemicus²⁷ would cause no confusion. The so-called "white-spot disease" should be mentioned, but as the cases of this disorder are most, if not all, examples of circumscribed scleroderma, no further comment is necessary. The irregular or angular, flat, shining, white papule, having on its surface dark, horny plugs or minute depressions, is characteristic of lichen planus sclerosus. Circumscribed scleroderma is not characterized by papules, and the horny plugs or punctate depressions are absent. These facts hold true for the most minute spots, as well as for large plaques. Lichen ruber planus with atrophy is distinguished by the presence of the ordinary red papules, and usually by severe itching, the latter, in the disorder under consideration, being slight or absent. There are no white papules, but merely atrophic white areas, which are secondary to a former inflammatory process.

27. Stein, R.: Ueber Naevus anemicus. Arch. f. Dermat. u. Syph., 1910, cl. 311. The author refers to the previously recorded cases of Vorner in 1906 and Fischer in 1909.

SUMMARY OF RECORDED CASES

The majority of cases mentioned earlier in this article are pure examples of the Hallopeau type. A few only will be briefly discussed.

Von Zumbusch's case of "lichen albus" is classed here as belonging to the Hallopeau type.

Csillag's case of *dermatitis lichenoides chronica atrophicus* probably belongs here, as does also Millian's case of lichen planus atrophicus, for which he thought the best title would be "leukoderma with punctate atrophy."

Riecke's case of provisional "white-spot disease" practically fulfils the requirements of this group. On the other hand, the case of Dubrenilh and Petges (lichen planus atrophicus), that of Gaucher, Barbe and Balli (lichen planus atrophicus et pigmentosus), and that of Wechselmann, of atrophodermia erythematosa maculosa (lichen planus atrophicus), and Pringle's case (annular and atrophic lichen planus), are examples of lichen ruber planus associated with cutaneous atrophy.

The case of von Zumbusch, described by him as a new disorder and termed "lichen albus," clearly belongs to

symptoms aside from some drawing sensations, and no ordinary lichen planus papules.

In the discussion of this case Darier stated that the disorder could be classed in one of four categories: lichen planus sclerosus, white-spot disease, "scleroderma en carte de visite" of Unna, or lichen albus. It appears, therefore, reasonable to place it in the group under discussion.

The most interesting report of all recent ones is that of Riecke. He gives a careful clinical and histologic analysis of a case, critically surveys the literature on the subject and finally places his case provisionally with two others—those of Westburg²⁹ and Johnston and Sherwell³⁰—under the title of "white-spot disease." On account of the very close resemblance to lichen planus

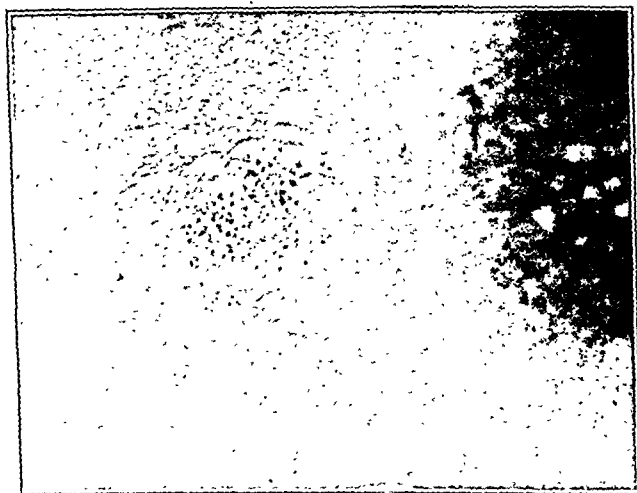


Fig. 3.; Case 1.—Lichen planus sclerosus et atrophicus. Showing a higher magnification of one area shown in Figures 1 and 2.

this group. The clinical picture and histologic findings were later reviewed by Hallopeau,²⁸ who believed that it should be classed as a case of lichen planus sclerosus.

Under the title "dermatitis lichenoides chronica atrophicus" Csillag describes a case which he classes as analogous with von Zumbusch's lichen albus. The clinical description of the lesions in this patient correspond in many particulars to those found in the cases of the subject under discussion, and is, therefore, placed provisionally in this group. Pale red mixed with chalky-white small areas and large plaques are described, on the surface of which are horny plugs connected with the pilo-sebaceous openings. The plate used for illustration is less characteristic than the written description.

Millian describes a case under the title "lichen planus atrophicus," or, better, "leukoderma with punctate atrophy," in which pin-head to pea-sized white lesions occurred. These were circular, shining, depressed, and showed a central punctate opening, as though they had been pricked with a pin. The large plaques were white, waxy and scaling. The earliest lesions did not present the punctate depressions. There were no subjective

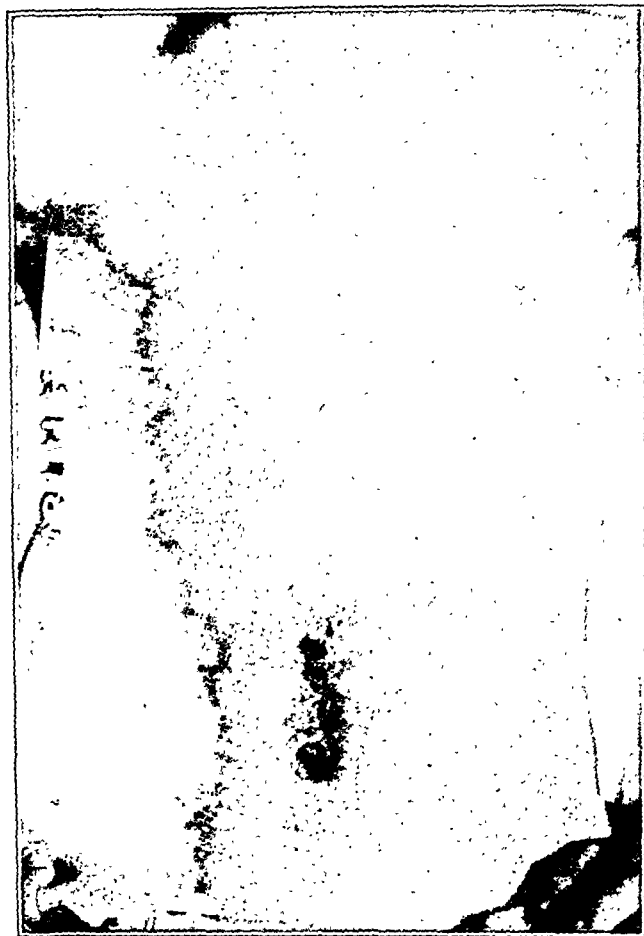


Fig. 4.—Lichen ruber planus with associated subsequent atrophic whitish areas. Shown for comparison with lichen planus sclerosus.

sclerosus of his clinical and histologic description, as well as the plate used for illustration of the case, a brief abstract follows:

The patient was a woman, 50 years of age. The cutaneous disorder began ten years before with a lesion the size of a silver quarter over the pit of the stomach, preceded by itching. The lesions had extended rapidly during the previous year. On examination the following was noted: The lesions were located chiefly on the abdomen from the pit of the stomach to the inguinal folds with a few on the outer surface of the thighs. They were sago-grain to lentil-sized, well-defined, round, oval, irregular, and polygonal in shape, with many closely set and confluent plaques, largely on a level with the cutaneous surface. The smaller were slightly elevated, but,

²⁸ Hallopeau: The Nature of Lichen Albus of von Zumbusch. Bull. de la Soc. Française d. dermat., 1907-08, p. 109.

²⁹ Westburg: Monatsh. f. prakt. Dermat., 1901, xxxiii, p. 355.
³⁰ Johnston and Sherwell: Jour. Cutan. Dis., 1903, xxi, 302.

on the whole, they were neither elevated nor depressed. They were not palpable and presented a markedly white luster. Each had a central punctate depression resembling a comedo. The smaller were smooth and showed no sign of inflammation. In the center of an older area some color, red or reddish-brown, was noted. In some areas a thin brownish-red crust covered the lesion, but, as a rule, this was surrounded by an alabaster-white ring. In some of the areas was a white lesion surrounded by a red halo. By confluence nail-sized plaques were formed.

Histologically, the stratum corneum was thickened; the rete thinner than normal, and the wavy line between the epidermis and the corium was largely obliterated. The connective tissue of the corium was increased in amount and presented few nuclei in its bundles. A cellular infiltration was noted deeply and at the periphery of the area. Vacuoles and lacunae were noted between the corium and epidermis, which the author deemed an important finding. The elastin that was present was normal. Horny masses were present in the hair follicles, extending as far as the sebaceous gland opening.

The case of lichen planus atrophicus described by Dubreuilh and Petges is not of the type under discussion. The lesions were situated chiefly on the forehead, in the scalp, and later in the mouth. During the course of the disease the question of diagnosis was uncertain for some time. Lupus erythematosus, syphilis and scleroderma en plaque were considered. Finally, after the mouth lesions were discovered, the diagnosis above



Fig. 5.—Morphea guttata resembling lichen planus sclerosus et atrophicus. Back view of a patient who had diffuse scleroderma of the lower limbs. Reported in *Jour. Cutan. Dis.*, 1907.

named was made. The case apparently was one of anomalous lichen planus associated with cutaneous atrophy.

The case of lichen planus atrophicus et pigmentosus of Gauchér, Barbe and Balli does not belong to this group. This patient exhibited highly-colored pruritic papules and plaques associated with marked hyperpigmentation, and, finally, atrophy. When the case was discussed before the French Dermatologic Society, Darier, who was familiar with the Hallopeau type, was of the opinion that the case was not one of lichen planus sclerosus.

Wechselmann, in 1903, reported a case under the title "lichen planus atrophicus." This case was further described with detailed histologic study, in 1904, under the title "atrophoderma erythematosum maculosum (lichen planus atrophicus)." The patient was a man, 35 years of age, with cutaneous lesions situated on the forehead, in front of the left ear, over the mastoid region, in the hairy scalp, and on the back to the left of the spinous processes near the junction of the first thoracic vertebra. In the last-named region, bluish-red, umbilicated, ordinary lichen planus papules were described. In the regions about the temple, ear, and scalp, erythematous and papular lesions, forming patches, occurred, which later underwent atrophy. The histology is that of lichen

planus with atrophy. No white papules were described, and the case clinically, as well as histologically, is not properly of the Hallopeau type, but appears rather to belong to the group in which atrophy was a sequence.

Pringle³¹ exhibited a case of annular and atrophic lichen planus before the London Dermatologic Society in May, 1901. This was an example of ordinary lichen planus with atrophy.

Figure 4 illustrates a case of lichen ruber planus associated with circumscribed atrophic white areas. The case is cited merely for comparison.

The six cases recorded here occurred in the practice of Dr. James Nevins Hyde, the late Dr. Frank Hugh Montgomery and myself. Case 1 is reproduced from a report³² made in 1907, for the reason that a microscopic study was made in that case. In the five new ones only clinical observations are available.

CASE REPORTS

CASE 1.—Patient consulted me at the West Side Hospital (dermatologic clinic), in January, 1906. "The patient, a woman, aged 56, was born and reared in Germany, but has lived in Chicago for thirteen years. She has had seven pregnancies, three of which terminated prematurely. In two others, the infants lived only a few hours, and the remaining two are represented now by two healthy children, aged 23 and 25 years respectively. She gives a history of having suffered many times during her life with a vague febrile disorder she called 'malaria.' She is very heavy, somewhat pallid, but fairly well nourished, and is excessively nervous.

"The present skin disorder began about eight months ago, she states, as small white and black spots, which have gradually increased in number. The lesions are now situated chiefly over the back part of the shoulders, but extend toward the neck and also a short distance down the back. A few spots are scattered over the upper part of the chest down to the margin of the mammae, and there are a few lesions on the upper and external aspect of the arm.

"The primary lesion is apparently a slightly elevated, angular, polygonal or irregularly-shaped, white papule, which on attaining the size of a millet-seed shows on its surface one or several small, elevated, black, comedo-like points, or minute depressions, where the black points formerly existed. A lesion of the size of a split pea usually contains five or six such points or depressions. The papules vary in size from that of a pin-head to that of a split pea. A few very minute, angular, white papules are present. Some of the lesions are surrounded by a narrow, pinkish areola; others by a brownish discoloration; while many present no color changes at the border.

"Over the back part of each shoulder is a patch formed by the coalescence of papules which, however, do not completely lose their identity. One of these patches measures about two inches in diameter, is irregular in outline, slightly elevated, white in color except for the black points and depressions which dot its surface, rough to the touch, and presents a somewhat wrinkled appearance (Figs. 1, 2 and 3). Over the upper part of the chest the lesions are discrete, irregularly disseminated and abundant. Over the clavicles a somewhat linear arrangement is apparent; while in other areas there is some grouping of the lesions. Here and there atrophic, slightly depressed lesions are present, which are of the shape and color of those just described.

"During the two months in which she has been under observation, there have been displayed at times a very few small, red- or brown-tinged papules, which were indistinguishable from the lesions of ordinary lichen planus, but their transformation into white papules could not be traced. During this period the patient has had very simple treatment, and the only change noted is the disappearance of most of the small, elevated, black points, their places now being occupied by the depressions. She complains of no subjective sensations except,

31. Pringle: A Case of Annular and Atrophic Lichen Planus, *Brit. Jour. Dermat.*, 1901, III, 215.

32. *Jour. Cutan. Dis.*, xxv, 1.

as the patient describes it, that of 'pulling.' There are no lesions in the mouth or about the wrists.

"Histology.—A biopsy was performed, removing a split pea-sized lesion from the posterior aspect of the left shoulder. This lesion was typical and exhibited on its surface six small dots or depressions, from which the comedone-like plugs had been removed. The tissue was fixed and hardened in alcohol, embedded in paraffin, and stained in various ways. A series of sections in which two hair follicles occurred were studied. A lanugo hair was present in each follicle. The most marked changes are in and about these follicles. As a whole, collagen and elastin are abundantly present, except in the areas of cellular infiltration, where both are either lessened or absent. Aside from the special areas to be described, the collagen appears condensed and contains fewer connective tissue nuclei than normal. Blood-vessels are few and are represented by strings of cells running horizontally across the field or radiating in various ways from the hair follicles. No vessels can be demonstrated in the papillary layer. In these sections three distinct and fairly well defined masses of cellular infiltration are present, in addition to that surrounding the follicles. They are situated in the lower part of the corium, about parallel with the base of the follicles, but not in connection with these structures. Beside these deposits, some small areas and some single cells are irregularly distributed about the corium. The infiltration is composed of connective tissue cells, lymphocytes, or small plasma cells, and mast cells. The latter are unusually abundant and occur not only in these special areas, but also irregularly throughout the corium. They are of various shapes, some large with their granules extending far from the nucleus. The changes in the epidermis occur chiefly about the follicular openings. The line between the epidermis and the corium is fairly well defined, its wavy character being only in places obliterated. The rete Malpighii consists of about eight rows of cells, in which there is some increase in the pigment. The stratum granulosum is composed of two rows of elongated, flattened cells containing fine granules of keratohyaline material. The stratum lucidum is not demonstrable, and the stratum corneum is thickened. The mouths of the two follicles, above mentioned, are widely dilated, and in the section present the appearance of a deep v-shaped opening, extending from the surface into the follicle. In places in the different sections a part of this large opening is occupied by a horny material similar to the stratum corneum. The lanugo hair can be demonstrated in the center of this opening, extending down to the base of the follicle. No sweat-ducts or pores occur in the sections, making it impossible to determine a connection between these structures and the clinical pits or depressions. The coil glands present are unaffected. In one place is a circumscribed area of cellular infiltration in the corium between a coil gland below and the epidermis above, but it seems to have no relation to the gland or its duct. From the involvement of the pilo-sebaceous apparatus in such a pathologic process it would seem that this is the seat of the original comedone-like plug, and, later, the pit or depression. The pathologic process is more deeply situated than in ordinary lichen planus and the marked involvement of the follicles is not usual in the common variety."

CASE 2.—A private patient of Dr. Hyde's, seen Oct. 15, 1906, and under observation for about two and a half years, was 49 years of age, weighed 176 pounds, and was not robust. The family history revealed no important facts. For years the patient had been nervous and slept poorly. She had suffered from variola at 5 years of age and had in addition the usual diseases incident to childhood. For twenty years she suffered from pruritus each summer, chiefly on the lower limbs. The cutaneous disorder began five years before, on the wrists and thighs. Six months before new lesions occurred about the vulva, accompanied by severe itching, and it was this that induced the patient to seek relief.

An examination on Oct. 15, 1906, showed, on the flexor surfaces of each wrist, many dense, white, irregular papules, varying in size, also some larger plaques. The former were poppy-seed to pea-sized; the latter somewhat larger than a coffee-bean. The inner faces of the thighs showed several round, oval or irregular areas, sharply defined, white or pale red, with

a slightly depressed and atrophic center, the border being narrow and irregular, and consisting of small, dense, white, irregular papules. The surface of these lesions was shining and showed punctate depressions. A few scattered lesions were present over the abdomen, about the groins, and over the legs and arms. Some traumatic lesions were also present in these latter areas. On the mucous membrane of the vagina, especially about the clitoris, was a characteristic lichen planus infiltration.

Six months later the patient developed diabetes mellitus, which was still present when she was last seen. In April, 1909, there was a marked recurrence of the pruritus vulvæ, at which time typical lesions of lichen planus sclerosus in various stages of involution were present. A period of radio-therapeutic treatment was given in April and May, since which time the patient remained comfortable.

CASE 3.—The patient consulted my late colleague, Dr. Montgomery, May 31, 1907, from whose notes the following is taken:

The patient, Mrs. M. B., aged 33, had been a delicate, nervous child, but had had no serious illness except scarlet fever from which she had made a good recovery. After finishing a high-school course, she studied and later practiced law five years. Ten years before, while studying, she noticed the first signs



Fig. 6.—Morphea guttata closely resembling lichen planus sclerosus et atrophicus (front view).

of the present skin disorder, which appeared as small white spots over the posterior surface of the shoulders. They were white in the beginning and had never been productive of any subjective sensations. They persisted with little or no change except to become somewhat more depressed. Six or eight months before this visit she noticed new areas coming on the back of the neck in the median line extending into the occiput. About one month later lesions began to appear over the breasts and on either thigh. After another month a small area appeared on the anterior surface of the neck (left side), and for about a month lesions appeared on the anterior surface of both wrists. On examination, an irregular triangular area on the back of the neck was typical of lichen planus sclerosus et atrophicus. Not only were the normal lines and folds of the skin exaggerated, but quite typical sclerotic lichen planus papules were visible. A number of these showed characteristic black points. The older lesions on the shoulders exhibited slightly depressed atrophic areas covered with parchment-like epidermis. They were white, but had a slightly dirty-yellowish tinge. On the anterior surface of the neck were a few papules, some with black points, and some showing atrophic areas. Two irregular areas about 2½ inches in diameter were situated on the outer surface of either hip, made up of minute atrophic points, some of which were distinctly angular in outline. On the anterior surface of each wrist were three or four pin-head-sized and smaller, whitish papules. Some of them had the appearance of being beneath the skin. These had been there about a month. Just above

each nipple was an irregular area about $1\frac{1}{2}$ inches in diameter made up of quite closely aggregated, clear, white, very slight depressed (?) atrophic points. In this plaque individual lesions retained their identity. No depression or change in texture could be detected with the finger. The patient and her husband (a physician) were positive that there had been no preceding changes of a different character, and that the patches enlarged simply by the appearance of new white points of the same character. Dermographism was marked and had been present for about a year. A report after seven months indicated no change in the existing, and no appearance of new, lesions.

CASE 4.—The patient, a woman aged 67, consulted Dr. Montgomery Oct. 16, 1907. No notes were made concerning the family history. Her general health was fair. She passed the climacteric period at the age of 45. She was of a markedly neurotic disposition. Her skin showed evidences of senility, being thin, atrophic, with patches of hyperpigmentation, and areas of keratosis. The cutaneous disorder was of five years' duration, and had been treated in Hanover, Germany. The patient had also consulted Professor Lassar, of Berlin.

The lesions were situated on the front and back of each shoulder and on the neck with a few outlying papules over the chest. The greater number of lesions were irregular white papules, level with the skin, on the surface of which were

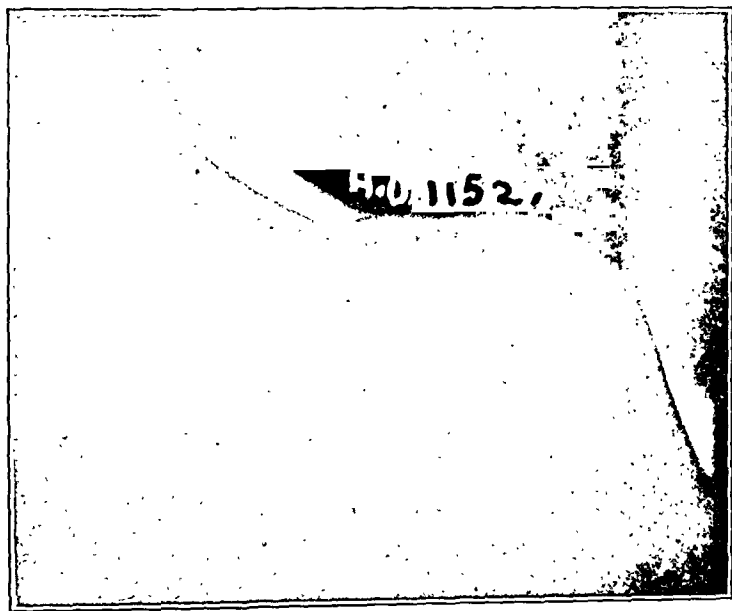


Fig. 7.—Morphea guttata. Same patient as represented in Figure 6 (back view).

minute black points. There were also several typical atrophic areas where lesions had undergone resolution. Slight telangiectasia was noted in the region of some lesions, which varied in size from 2 to 4 mm. Early in the history of the disorder itching was quite marked; later it became less and at the time of the examination was present only to a slight degree. Six months after the first examination there was not much change in most of the lesions. The area on the right shoulder had increased in size. At this time a general examination revealed an interstitial nephritis, with albumin and casts in the urine and blood-pressure of 230. In addition to topical applications, radiotherapy was employed. In March, 1910, I again examined the patient, when only the relics of the lichen planus sclerosus lesions remained. The last consultation was made with reference to the facial hyperpigmentations.

CASE 5.—The patient consulted me, Aug. 11, 1909. This patient was a refined, rather delicate woman, 42 years of age. Aside from her nervous temperament, no facts of importance relative to the family or past history were obtained. The cutaneous disorder was of fourteen months' duration. It began on the right side over the region of the clavicle, with six to eight pin-head-sized whitish papules. New lesions gradually developed over the shoulder and upper part of the back, and over the opposite clavicle, shoulder, and back, and a few sparsely distributed over the abdomen. On examination, indi-

vidual, discrete, irregular, flat-topped, hard white papules, each presenting two to five dark, horny elevations on its surface, and in some only pit-like depressions, were noted in all the described areas. In addition, several dime-sized areas, especially over the shoulders, displayed characteristic grouping of the papules. In these areas individual papules could be detected. The surface was whitish, except where dotted with horny plugs or dark minute pit-like depressions. Radiotherapy was employed during September, 1909. In December, the lesions had largely undergone resolution. In April, 1910, two new plaques developed. In this patient no areola was ever present and no lesions suggesting lichen ruber planus. There was no vascular element in the case, and no mucous membrane involvement. The lesions were sclerotic and whitish from the minutest earliest to the older, forming plaques, each showing characteristic dark points.

CASE 6.—The patient first appeared at the dermatologic clinic of Rush Medical College, where she was seen by Dr. Anthony, through whose courtesy I saw her. This patient was the youngest of the group, being 30 years of age. She was seen first on Aug. 17, 1909. She was a telephone operator, highly nervous, had suffered for a long period with severe headaches, and frequent attacks of palpitation of the heart. She was not robust. Her hands and feet were habitually cold. The urine was normal, though she was annoyed by frequent urination. She was practically neurasthenic.

The cutaneous disorder was of one and a half years' duration, and was nearly a replica of Case 5 of this series. The lesions were situated over the clavicles on each side, and extended from over the shoulders to the upper part of the back. The same white sclerosed papules, discrete and grouped, all containing dark horny spines or minute horny depressions, were present. There were no red papules, none of the lesions had an areola, and there were no mucous membrane lesions.

This patient was demonstrated with Case 5 at a meeting of the Chicago Dermatological Society in December, 1909, at which several members of the American Dermatological Association were present.

In February, 1910, radiotherapy was used, with beneficial results.

SUMMARY OF THE SIX CASES HERE RECORDED

All the patients were women, aged 30, 33, 42, 51, 51 and 63 years, respectively. All were neurotic. One had neurasthenia; another had marked, peculiar psychic phenomena; diabetes was present in one; interstitial nephritis in a second. The duration of the cutaneous disease was eight months, fourteen months, eighteen months, five years, five years and ten years, respectively.

The site of most extensive involvement in five of the patients was the region over the clavicles, shoulders, neck and upper part of the back. In one the wrists, flexor surface, thighs, abdomen, groins, were chiefly affected, with a few lesions appearing on the legs and arms. The essential lesions in all cases were whitish, discrete, round, oval, irregular, or polygonal, flat-topped papules; similar lesions forming whitish plaques, all having dark, horny spines, or punctate depressions. The lesions were either level with the surrounding cutaneous surface or very slightly elevated. In all the terminal result was a white depressed, delicate scarring or production of atrophic areas of the size and shape of the preceding lesion, whether papule or plaque.

In two patients a few usual reddish lichen ruber planus papules were present, but they were never observed undergoing transformation into the white lesions. The latter were from the beginning white papules.

In one patient coincident mucous membrane involvement with ordinary lichen planus was noted. In Hallopeau's case this occurred in the mouth. In one of my cases the vagina was involved. In five cases subjective sensations were slight or absent; in one they were

marked, but the pruritus could not be attributed to the disorder under discussion.

That the disease may be persistent is evidenced by its long duration in some of the patients who still exhibit active lesions.

In five cases in which radiotherapy was used it proved to be a valuable therapeutic measure.

The group as a whole corresponds clinically with the Hallopeau type of lichen planus sclerosus, and in the one case where a histological study was made it corresponded with Darier's observations in Hallopeau's case, and also with his own.

CONCLUSIONS

From the brief summary detailed above it appears logical to group the six cases under one title. They do not differ from one another more than the members of any group of six different patients suffering with any single dermatosis. In the question of differential diagnosis only three cutaneous disorders capable of producing whitish lesions on the skin need be considered, viz.: localized or circumscribed scleroderma (Fig. 5), lichen ruber planus of usual type associated with or followed by atrophy, and the so-called "white-spot disease." Such disorders as vitiligo, syphilis, lupus erythematosus, nævus anæmicus, and lepra are readily excluded. Lichen planus of the usual type associated with atrophy is excluded by the fact that the primary lesion in these cases is never reddish, as in its whole career it is a whitish sclerotic papule. That these cases are probably of the same nature and simply a special form of lichen planus is strongly suggested by the association in certain cases with mucous membrane involvement of the lichen planus type; also by the fact that some papules of the ordinary form at times concur, and, finally, by the fact that the lesions themselves, both as to size, shape and arrangement, are similar, the striking difference existing only in the color and presence of characteristic dark, horny spines and keratotic punctiform depressions. The so-called "white-spot disease," as a rule, if not always, is an anomalous localized scleroderma. In certain cases of circumscribed scleroderma the resemblance is striking (Figs. 6 and 7). Here again the initial papule is the important factor. In the case of circumscribed scleroderma above referred to papulation is simulated by the line of cleavage in the skin, but on careful observation the difference can be noted, and in scleroderma involvement of the sweat-pore and pilo-sebaceous follicles is wanting. Finally, in a retrospect of the entire subject the identity of lichen planus sclerosus appears established, but the separate existence of a "white-spot disease" requires further study.

106 State Street.

Imprisonment of a Physician for Extortion.—Our German exchanges state that a certain sickness insurance society refused to pay the account rendered by a local physician on the ground of the statute of time limitations. He warned the company that unless they paid the account he would bring the matter to the attention of the local medical council and the company would be boycotted. The government experts, the *königl. Medicinalkollegium*, declared the charges too high and the company thereupon sued the physician for attempted extortion, and he was condemned by the local court to a week's imprisonment. The editorial comment in one exchange is merely a warning to physicians to proceed always with extreme conscientiousness and prudence in attempting to collect what is due them.

REPORT OF A CASE OF INTUSSUSCEPTION

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In presenting the following case of intussusception which came under my care, I wish to call attention to its most unusual phases, which were of great interest to me and to those of my colleagues who saw the operations.

Patient.—On April 1, 1910, I was called to see I. H., white, aged 21, a dairyman, single, with family history as follows: Mother living and widow; father died at age of 81, of senility; one brother living, married and in good health. Two sisters living, one married, one single, both enjoying good health. No history of tuberculosis, cancer, rheumatism, heart, kidney or nervous trouble. The patient used no tobacco or spirits; drank coffee three times a day; at times drank quantities of tea. Habits regular, except constipation. He had had most diseases of childhood; had never had diphtheria, scarlet or typhoid fever, pneumonia, kidney or heart trouble. Genitourinary examination was negative. He had had chronic indigestion with acute exacerbations, which would last two or three days, with slight pain at times in the epigastrium, accompanied by nausea and some vomiting.

Present Illness.—When, on April 1, 1910, I saw patient for the first time his pulse, temperature and respiration were prac-



Fig. 1.—Intussusception first: section of ileum 3 feet long, removed April 4, 1910. Forceps at neck of intussusception.

tically normal. He complained of some pain in the epigastrium and nausea, and there was slight vomiting of bile-colored matter. His tongue was coated. I ordered 3 gr. of calomel, followed next morning with magnesium sulphate. I withheld all food. The patient had two bowel actions in afternoon and night, and following morning was comfortable and ate breakfast. I learned from the attendants that the magnesium sulphate was not given. A comfortable day and night followed. On Sunday forenoon, April 3, I received a message saying that the patient was suffering with pain in stomach and was vomiting. I saw patient about 1 o'clock the same day and found that he was vomiting incessantly. There was continuous pain in the upper part of the abdomen. I had him wash his stomach out with a solution of bicarbonate of soda and left orders for an enema, which was given and returned with slight result. The nausea was somewhat relieved, but vomiting soon set up again, and the pain was continuous. The abdomen at this time was soft, with no distention and no evidence of tumor present. I saw patient again at 7 o'clock that night and found the symptoms greatly exaggerated. There was still no distention, but I felt a tumor below and to the right of umbilicus, with a dullness that extended almost across the lower half of abdomen. I gave an enema, with no result; then gave one-half grain of morphin and advised sending the patient to a hospital. I told the family that I believed an operation to be imperative, but would do what I could to relieve obstruction before resorting to operation. This was done. During the night the patient was given laparotomy enemas, enemas of alum, etc., but with no result.

He passed some blood and mucus (just before operation, slight) and in the early morning vomited some fecal matter.

First Operation.—The patient was prepared and operated on April 4. I made a median incision below the umbilicus which extended above and to the left of that point, and found an invaginated small intestine which I supposed to be the upper part of the ileum. I resected the intussuscepted intestine, which was more or less gangrenous, taking out three feet. I did an end-to-end approximation and closed the abdomen in the usual way, leaving drain in.

The patient suffered very little shock and was put to bed in Fowler's position and given Murphy enteroclyses. He rested well. During the first forty-eight hours the pulse was frequent, as rapid as 120 per minute at times; temperature from 99 to 101; but on the third day, while the temperature was still slightly elevated, the pulse returned to normal. On the second day the patient had some nausea and vomiting. His stomach was lavaged, which relieved the vomiting entirely, and nausea did not return until the third day, at which time lavage was repeated and his stomach symptoms were relieved entirely. His kidneys acted freely, and on the fourth day, April 7, he had a voluntary bowel movement. His condition and recovery were entirely satisfactory until April 14, at which time he had some nausea, but did not vomit until next day. At this time he had been taking nourishment by mouth for five days. The vomiting was somewhat relieved by lavage, but his condition grew worse and we decided on another operation that morning at 8 o'clock. This was April 15.

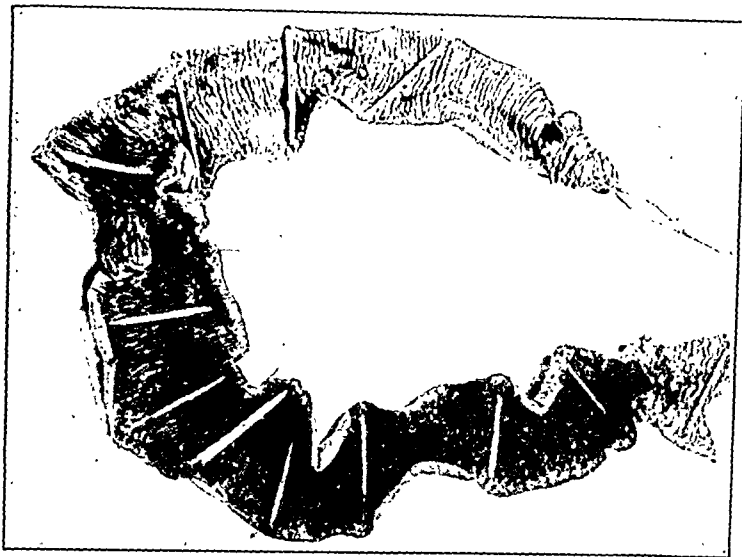


Fig. 2.—Intussusception second; section of jejunum $4\frac{1}{2}$ feet long, removed April 24, 1910. Forceps at point where neck of intussusception was, before intestine was opened.

Second Operation.—Incision was made in median line above umbilicus, and I found that I had to extend this into upper part of old incision in order to reach the obstructed parts. I found an adhesive band about eighteen inches from the resected portion of the bowel. The omentum was adherent to several structures, but doing no harm. The resected portion was free from adhesions and perfectly healed. I freed the adhesive band, sutured over the raw surfaces, and closed the abdomen.

With little or no shock from this second operation the patient was again put to bed in Fowler's position with Murphy drip. Condition was satisfactory, except for nausea and vomiting, which were relieved, as before, by lavage. On April 17, the third day after second operation, he was given magnesium sulphate through stomach-tube, which resulted in three or four stools. On the fifth day he was taking nourishment, and on the eighth, light diet. On April 23, the ninth day after second operation, he had slight nausea and refused nourishment. He complained of some pain in abdomen in forenoon, but later on in the afternoon the pain became severe and continuous. There was persistent vomiting and early shock. I also found a tumor in left upper quadrant of the abdomen with dulness, extreme tenderness and very slight distention.

Third Operation.—We operated at 1:30 o'clock a. m. April 24. I made incision in the left semilunar line and delivered the invaginated intestine, which was very congested and edematous,

almost as much so as the first resected portion. I resected about $4\frac{1}{2}$ or 5 feet of jejunum and found a tumor of the adenopapillomatous variety at the neck of and termination of the invagination; also two or three small ones projecting from the lumen of the intestine. The tumors were examined by Dr. Newton Evans, who reported their nature to be as stated. These tumors were almost large enough to obstruct the lumen. As before, I made an end-to-end approximation and closed the incision with a drain the lower end.

Postoperative History.—After operation patient was put to bed with foot of bed elevated and was given hypodermoclyses, with slight stimulation, strychnin, digitalin and adrenalin; also Murphy drip. The patient suffered considerable shock after this, the third major operation he had undergone within three weeks. He made an uneventful recovery. There was slight infection, though the wounds healed kindly. On May 16 he was up and walking about the hospital.

After the specimen had been removed and placed in saline solution slight peristalsis of portions was observed for several minutes.

The interesting points of the case are the following:

- 1.—Age of patient, 21 years.
- 2.—History of indigestion for two or three years.

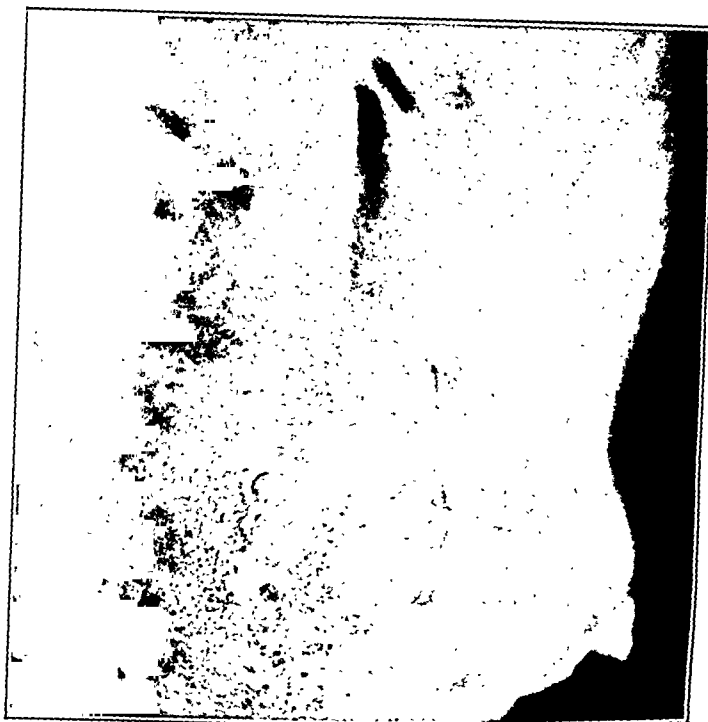


Fig. 3.—Abdomen after wounds had healed, with median and lateral scars.

- 3.—Onset of attacks.
- 4.—Early diagnosis.
- 5.—Early surgical interference.
- 6.—Recurrent attacks.
- 7.—Rapid recovery from each operation.
- 8.—At times active peristalsis.
- 9.—Large quantities of liquids administered by enteroclysis retained over great length of time.

The enteroclyses were as follows: After the first operation, $1\frac{1}{2}$ pints of saline solution, every four hours for four days, all retained. After the second operation, $1\frac{1}{2}$ pints of saline solution, and $1\frac{1}{2}$ ounces of a pre-digested food, every four hours for two days, all retained but part of one. After the third operation, $1\frac{1}{2}$ pints of saline solution, $1\frac{1}{2}$ ounces of the alcoholic pre-digested food, every four hours for two days; part of one returned. The quantity was then diminished to 4 ounces of saline solution and 1 ounce of the peptonized food, every four hours for twenty days; all retained. The reason for the long-continued enteroclyses was that patient refused to take proper nourishment and liquids.

140 Eighth Avenue North.

THE DIAGNOSIS OF LEPROSY*

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NEW ORLEANS

Long association with the Louisiana Leper Home has given us an opportunity for the observation of leprosy, and we hope that this, together with the importance of correct and early diagnosis, in countries where leprosy is likely to occur, will justify the present discussion of this subject. We are not submitting any new points in diagnosis but rather argue the need of a practical presentation of the matter for the general profession, especially in our own country, where every now and then a notable case proves an ignorance of essential points which should be known. More than this, the reports of imported cases of leprosy in our seaport cities have shown conclusively either that the national quarantine against leprosy is a farce in its enforcement, or that the quarantine officials are ignorant of the symptoms of the disease. In New York chiefly numerous cases have been presented which have more or less recently been admitted to this country without hindrance.

As a matter of fact, the increasing number of lepers in New York has grown by importation, as the disease so far is not held endemic there.

The trouble in diagnosis lies more with atypical cases, with incipient tubercular cases and with those anesthetic cases which present no longer active skin manifestations. Another source of confusion in diagnosis lies in the changes that appear in lesions during the periodic occurrence of exacerbations accompanied by lepra fever.

Like syphilis, leprosy has often been divided into stages and types, but, as in syphilis the value of such diagrammatic classification of leprosy is greatly impaired by the fact that the types are often mixed and that the lesions that should be present in one stage are often found in another. Generally the type depends on the habitat of the bacillary cause, the anesthetic or trophic being due to nervous injury by the bacilli, the tubercular or nodular being due to the presence of the bacilli in the skin, and the mixed type being a combination of the anesthetic and tubercular forms. It is not unusual in the course of years to see a change in the type. The tubercular type in a mixed case may disappear, leaving only the anesthetic, and a purely anesthetic case may after years develop tubercles, forming the mixed type, which may in turn evolve a trophic type, having no tubercles in evidence.

The usual sequence of the lesions after the prodromal period is that the first manifestation in almost every case is in macules which usually initiate all types, usually varying in their location accordingly. Much rarer is the bullous eruption which occurs in this same early stage. Tubercles usually appear later than macules and may be independent of them; the ulceration and cicatrization of the skin occur ordinarily only in the terminal stage, though the perforating ulcer, which is a sinus leading to necrotic bone, may be found early, and in mutilating types the erosions following bullous lep-

rosy may form true ulcers before any macules or tubercles present themselves.

The macular eruptions do not always present the same characteristics. They vary from the size of a dollar, or smaller, to a patch large enough to cover an entire anatomic region; the pigment may be almost uniformly distributed throughout the patch, as it is in chloasma, or it may disappear in the center, leaving a ring of pigment surrounding an area of skin lighter in color than the normal; somewhat the same arrangement that ringworm of the general surface assumes, except that the atrophy of pigment in the center is marked and may, at the same time, involve the deeper skin. Scales are unusual in both types and occur usually only as a result of inflammation in the area or as the evidence of trophic disturbances.

The first type, the uniformly pigmented macule, depends largely for its characteristics on the amount of infiltration provoked by the presence of the bacilli. It may be simply a brown stain, level with the surface of the skin, with an irregularly shaped border not always margined, or a patch so elevated that the term macule becomes a misnomer. On the other hand, there may be multitudinous macules, with symmetrically bilateral distribution on the trunk and extremities alike, entirely free of bacilli and having all the characteristics of a true erythema.

This form of macule is particularly common in anesthetic leprosy in which the early involvement of the nerve trunks of the extremities points to the toxic influence of the leprous deposits along the nerves. This is particularly argued in the facts that such eruptions of macules are evanescent and that the lesions themselves are highly colored, bright red, and are often apt to be hyperesthetic and not anesthetic as are the more deeply pigmented and infiltrated lesions.

In the second form the margin is well defined and the brown color becomes a purplish red. Between these two extremes are the variations in shade made possible by the varying degrees of inflammatory infiltration. The favorite location is the buttocks, though the face, trunk and limbs may also be involved, and these macules are often the sites of later tubercles or nodules, especially when found on the face. Though these may not be necessarily symmetrical when they first appear, later these macules become so as the eruption fully develops. During the periods of lepra fever the macules may become intensely inflamed and painful, and though the fever does not usually occur severely during the incipient period, we have had at the Louisiana Leper Home instances in which the whole macular areas, numbering four or five as large as the palm of a child's hand, have ulcerated. Ulceration in the incipient stage is indeed rare, and can be explained only by the lepra fever, which is evidently a manifestation in greater or less degree of culmination of deposits of lepra organism, or else the acute reaction associated with new fields of invasion.

In the circinate type the patch of lepra macules usually grows in size after it first appears, spreading from the outer border of the ring, which preserves a well-defined margin; and it is more often associated with the anesthetic than the tubercular form. The inner margin of the ring is not liable to show as well-defined a border as the outer, and as the lesion grows larger in area the paler center grows also, keeping the pigmented ring nearly constant in relative breadth. The degree of infiltration in this type of macule is not as variable as in the first type, usually remaining slight, and the color varies with the depth of infiltration. This,

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

too, is found almost always as a light brown, aptly described as *café au lait*, which is the characteristic color of all of the macules that present the least amount of infiltration. A reddish tinge is added to the brown of the border in those cases with more marked infiltration, the resultant color being a red-brown, which is again intensified during the lepra fever. This circinate type may occur on any part of the body, but the hands and head are not as liable to this as to the form in which the macule presents a uniformly pigmented area, appearing *en plaque*. The areas of especial predilection are the shoulders, legs, thighs, buttocks and forearms, in the order named. It is not infrequent to find confluent lesions of this type forming grotesque ribbons of irregular borders and outlines, extending along the whole of an extremity or showing symmetric figures over the back.

The bullous eruption, which is very rarely seen, occurs associated with this early stage, or precedes the macule if it occurs at all. The bullæ contain serum at first, but become pustular in a short time. They are not larger than a small marble, and occur most frequently on the hands and feet. The clinical diagnosis is frequently difficult without other evidences of the disease. The bullæ have a predilection for the areas over the knuckles of the fingers and will repeatedly appear in the same site, establishing scar areas with encircling pigment, which is characteristic. Often these lesions lead to ulceration and even trophic changes in many cases misleading to a diagnosis of neuritis and not infrequently escaping the suspicion of leprosy for months or years, in the hands of neurologists. Several cases have finally come to a diagnosis of leprosy when the skin evidences of macules or tubercles elsewhere have developed.

On the feet the bullæ seldom appear so early, and when they do come they are found on the plantar surface, usually going on to actual ulceration, trophic in character.

Late leprosy will develop bullæ as evidences of trophic changes and here the destruction of skin and deeper tissues is the rule, finally causing the destructive, amputative deformities found in nerve leprosy and the loss of terminal or intermediate phalanges of the digits of fingers and toes.

The tubercles in leprosy have their favorite location on the face, involving especially the lower part of the forehead, the ears, the nose, the chin, the cheeks, in the order named. The hands and other parts are less frequently involved.

They may begin in the patches of a macular eruption, or they may develop in normal skin. When sufficiently developed tubercular or nodular leprosy is essentially a bilateral, symmetrical disease. In some cases individual tubercles cannot be distinguished, but the whole skin of the face is greatly infiltrated, thickened and discolored, the surface remaining smooth, or, more often, cut by furrows sometimes a quarter of an inch deep in the natural lines of cleavage, or in the folds of the forehead, cheeks or chin. This furrowed type is especially marked on the cheeks and forehead and gives the leonine expression to the countenance more strikingly than the other varieties. In other cases the tubercles preserve their integrity, studding the face in their favorite areas of distribution with nodules varying in size from a pea to a marble. The color is usually a dusky reddish-brown, or may be waxy white in those cases in which the lesions are scattered and which are usually the most malignant. Each individual nodule is rounded at the base and

spherical in contour, much as if peas or marbles had been stuck in the skin.

The eyebrows and beard may fall in this type, but as the scalp is not usually affected its hair may be preserved in its integrity until very late in the disease or to its termination.

Periodically in the course of the disease there may occur an outbreak of tubercles, evanescent in character, highly inflammatory and very painful. These occur during the course of the lepra fever before mentioned, which may last from one to five or six weeks, or even longer. These tubercles are deep-seated and dull red in color, not showing the brown pigment of the chronic type. They fade away with the subsidence of the fever and sometimes one crop will disappear to be replaced by another before the temperature returns to normal. The inflammation in this type is sometimes so intense that vesicles and bullæ develop on the tops of the tubercles, and some may even undergo suppuration with the formation of abscesses. Their distribution over the body is far more general than that of the permanent tubercles, as they occur not only on the face and hands but also on the trunk and on both the flexor and extensor surfaces of the extremities. The type of fever referred to as lepra fever is not the fever usually described as one of the prodromal symptoms of leprosy, but is an irregular elevation of temperature ranging from 100 to 104 F., and associated either with marked changes in the macules or tubercles present before the occurrence of the fever, or with the formation of such tubercles as have just been described. These tubercles may be especially recognized by their tendency to uniformity in size and their usual lenticular shape as if a flat bean were embedded in the skin.

The lepra fever has two distinguishing symptoms, the rise in temperature and the development of tubercles different in many characteristics from the lesions found as the usual evidences of leprosy. In the tubercular and mixed cases it occurs at varying intervals of time and is of varying duration, while in the pure anesthetic and trophic cases, as there are no tubercles, the skin evidences are lacking. Though there may be periodic rises of temperature, they are often associated with the suppuration which is the result of nerve disturbances and which is more liable to affect the bones and joints than the skin; in consequence the cardinal point in the diagnosis of lepra fever is lacking.

The inflammatory evidences in the tubercles accompanied by a general rise of temperature occur in almost every case of tubercular or mixed leprosy, though the symptoms are sometimes of so slight a character as almost to escape observation. The temperature may vary from so slight a rise above the normal as to occasion merely a feeling of malaise, to a grave febrile condition. The range of temperature is from 99 to 105 or 106, and two cases have been observed in which the result was fatal. The attack is often ushered in with a chill, and the duration is very variable—from a few days to several weeks or even months. Some patients have been known to have as many as three or four attacks during one year. The chief features of the temperature chart are the remittent character of the fever, and the sudden great rises and fall of temperature. The chart of a well-marked case very closely resembles that of septicemia.

The occurrence of marked inflammatory symptoms in old tubercles, infiltrated patches, macules, or in areas of skin which apparently were previously healthy, is coincident with the rise of temperature and is characterized

by swelling, redness, pain and, rarely, suppuration. The occurrence is most frequent in old tubercles and least frequent in areas of skin which previously were not involved. The duration of the inflammatory nodules is short, but one crop is followed by another as long as the fever lasts. The location is most frequently on those parts of the body that are involved by the chronic characteristic nodules of leprosy, the face, neck, hands, and also the arms and legs. The distribution seems, like that of the chronic lesions, to prefer those parts of the body in which the temperature is lowest. The trunk is less frequently involved, and we have seen no cases involving the scalp. The number of lesions found at one time is very variable and they are disseminated with an irregular, bilateral symmetry. They vary from the size of a split pea to that of a hen's egg. The elevation above the surrounding skin is well marked and the nodules are of a globular contour, usually rounded in outline and distinctly limited in area. The color is uniformly red—a brighter and more brilliant hue than the dusky purplish red of the stationary tubercles, from which they can be differentiated not only by their inflammatory character but also by their rapid development, their evanescent character and an occasional tendency to suppurate and occur on parts of the body not usually affected by permanent bacillary deposits. Unless suppuration occurs the nodules are quite firm to touch and most resemble those found in erythema nodosum. It has been a matter of observation that often after attacks of lepra fever there has been improvement in the old tubercle and in the general condition, which seems to argue that during these attacks some bacillary product is formed which not only causes the elevation of temperature but also either directly affects the life or growth of the organisms, or indirectly, through the elevation of temperature, produces a condition unfavorable to the germ life.

In support of the latter view may be mentioned an observation made by Dr. F. B. Gurd, of the Department of Pathology of Tulane, in which the pus from an abscess caused by the suppuration of an inflamed tubercle was found to contain no organism except the bacillus of Hansen. These bacilli were found to be incapable of cultivation under the same conditions in which other Hansen bacilli had been found to flourish.

It is also interesting to note that during the administration of a series of hot baths, in which an effort was made to maintain an elevation of temperature of 104 for several hours, two tubercular cases developed lepra fever. If we may be permitted a little speculation, the great improvement derived from elevation of temperature, even in advanced cases of leprosy, may be explained on the hypothesis that the lepra bacillus does not thrive at high temperatures. The location of the chronic tubercles is very suggestive of this, as is also the improvement noted after erysipelas, lepra fever, and artificial elevation of temperature by means of hot baths. It seems possible that the products of the disintegration of dead bacilli provoke a general rise of temperature as well as the local heat of inflammation, and that the febrile condition thus produced reacts on bacilli in other locations, which, in turn, in their disintegration, liberate fever-producing toxins. It is conceivable that such a process should continue until all the less viable bacilli become destroyed, when the temperature returns to normal and old lesions show considerable improvement.

With the exception of the tubercle associated with the lepra fever the nodules of leprosy seem to have a marked preference for the exposed parts of the head. The scalp

is almost always free, while the ears are, on the contrary, almost always involved. They become enormously enlarged either by the presence of tubercles, in the lobes especially, or by a diffuse infiltration, both of which cause a marked discoloration. It is not unusual to find, even in terminal cases, tubercles present massed over the entire face and ulcerating, the limit of the most aggravated part of the eruption clearly marked by a line around the neck about where the shirt-band rests. On the trunk and arms and legs the macular eruption is far more common than the tubercular, though nodules may occasionally be found over a macular patch or even on a part of the skin presenting no other lesions. The tubercles never mass over the entire body as they do over the face. The most common condition on the hands is the thickening of the skin and pigmentation, with tubercles more sparsely scattered than on the face, the color being a dusky brown. The infiltration and swelling of the hands so affect the skin as often to cause a papery consistency like thin parchment.

The ulcers of leprosy are of two kinds, the perforating and the purely cutaneous. The latter occur most frequently on the face and on the legs. On the face they are usually superficial, but those around the mouth are liable to cause considerable destruction, and when the ulceration has healed the shrinking resulting from cicatrization will reduce the mouth to about one-third its normal size. The ulceration of the face occurs only in the terminal stage when the tubercles have become large and thickly aggregated, and it is found only in the tubercular and mixed types, the trophic form, or nerve leprosy showing in the face only by the infiltration of the whole mask of the face, with thinning of the epidermis, leaving the skin glossy and pigmented. The ears in this form are often flabby and pendulous; ectropion causes a stare, which is a peculiarity of this disease. The cause of the breaking down of the nodular masses seems to be due more to a disturbance of circulation in the skin than to the bacilli present, and this seems true also of the ulcers of the leg, where the circulatory balance is easily disturbed by gravity.

The perforating ulcer is associated only with the anesthetic form and is found only on the hands and feet, and more often on the ball of the foot than elsewhere. It is a surgical condition, being a sinus leading to necrotic bone. The horny layer of the skin is much hypertrophied when the ulcer is on the foot and the condition is painless.

A strong confirmatory symptom of leprosy is the anesthesia found in all types. In the tubercular type it is confined to the lesions, but in the anesthetic it spreads over the area of distribution of the nerve affected. The sense of pain and temperature are lost before the sense of touch, and in the anesthetic type the nerves most frequently involved first are the ulnars. The loss of sensibility begins usually in the tip of the little finger and spreads gradually to the adjacent fingers and up to the forearm. Other nerves become involved later on and the anesthesia may become general. In this instance there is always either marked thickening of the ulnar nerve or distinct nodes along the nerve. The left side is more often the first to be affected.

The mutilation in the anesthetic or nerve type is almost confined to the hands and feet, usually being limited to a loss of the fingers and toes, and is due to trophic changes caused by nerve destruction. The atrophy may be manifested by the "claw-hand," in which the flexor tendons and muscles shrink more than the extensor, drawing the fingers up and preventing exten-

sion, or it may affect the bones, causing either necrosis or a gradual degeneration and absorption.

When necrosis occurs, a perforating ulcer is established and persists until the fragment of dead bone, sometimes an entire phalanx, is discharged. The ulcer then heals, leaving the finger or toe shortened by the loss of bone. When necrosis with suppuration does not cause the loss of bone in mass, a slower process of absorption goes on, and the flexed fingers become shrunken masses of flesh with atrophied nails at their extremities.

The curious condition of an amputation at the joints by constricting circular atrophy, just as in the disease known as "ainhum," is often observed and fingers and toes are often lost in this painless way. A band of fibrous tissue forms around some part of the digit and gradually constricts the underlying tissues. The band is usually about one quarter to one-half inch in breadth, and as it grows tighter the tendons and bones under it atrophy until the finger is left hanging by a fibrous band, which can easily be cut off with a pair of scissors; or, if left to itself, the finger will fall away, the patient often being unconscious when the loss occurs.

The suppuration attending the necrosis of bone may extend to joints involving the articulations at the wrists and ankles and occasioning a condition like tuberculous or septic arthritis.

Considerable attention has been directed to leprosy in the United States and recent cases have enforced the belief that not enough emphasis has been placed on the training of government physicians with regard to this disease. The notoriety attaching to the Early case alone, which excited the qualified criticism of at least two distinguished foreign leprologists, may be cited in point.

The United States has specific immigration laws which require the deportation of lepers; yet in 1908 several patients with advanced leprosy were shown in New York at the International Dermatological Congress, and some of these cases were in recently imported foreigners.

Within the past three years Dr. Dyer has seen two lepers from Central and South America, who reached New Orleans by way of New York. These cases were well enough marked to have been recognized by any health officer who had even a meager idea of the disease.

It is highly important that the cardinal symptoms of leprosy should be learned by the officers of the public health so that importation of leprosy may stop. It does not require any more legislation, but more education of port physicians.

The salient points of diagnosis in leprosy consist in the recognition of the stamp of the disease, which is always suggested by the dusky hue, the swollen skin, the overhanging eyebrows and the raucous voice. The hands, too, have a thinned epidermis and an altered color which is different from that in any other disease. The presence of tubercles in the skin of the face, at the lips and about the nose, with others, in the pendulous parts of the ears—all these should make a case suspicious.

The differential diagnosis of leprosy, clinically, is at all times simple. There are only two conditions which at all resemble tubercular leprosy, iodism and disseminated tuberculosis cutis. The first-named condition is seldom seen in the areas common to leprosy and the nodules of iodism are highly inflammatory and ready to break down.

With tuberculosis of the skin, the lesions are numerous, small, and deep-seated, under the epidermis as a rule. They are dirty white in color and seldom assume

a reddened hue. Moreover, this condition on the face is unusual and when it does occur, the lesions are more apt to occur bilaterally and symmetrically, in numbers, on the cheeks and wings of the nose than elsewhere.

We would finally make the point that all physicians should report any cases of leprosy coming under their observation so that the actual occurrence of this disease in the United States may be studied and the statistics derived may be of some value in establishing an institution for the care of leprosy under government control and expense.

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ABSTRACT OF DISCUSSION

DR. A. RAVOGGI, Cincinnati: It would be somewhat difficult to measure the value of fever as a diagnostic factor in these cases. The fever is usually present in the early stage of the disease, but we seldom see cases of leprosy in their development. We usually see them when they begin to suffer from neuralgic pains or during the eruptive stage. It is extremely difficult to establish the diagnosis of leprosy in the second stage, when the eruption which we call the leprides are developing, as they can easily be mistaken for various kinds of eruptions. The only characteristic symptom is when they show the toxic erythema—large, reddish patches on the arms or in other regions which usually are accompanied by severe neuralgic pains when the nerves have become involved. In the later stages, when the tubercles form, the disease is more readily recognized. I have seen cases where there was scarcely any eruption—merely spots of cloasma or vitiligo and neuralgic pains. Then the hands begin to be paralyzed and take on that peculiar appearance, hand-drop. In one case only a large leproma developed on the knee and another on the foot, causing ulcer which involved the joint and the bones. I firmly believe that with a little experience and attention it will not be difficult to establish the diagnosis of this disease, which should be stamped out. This is being done with brilliant results in Norway. In the United States we have about 278 cases, some in North and South Dakota from Iceland, some in Minnesota from Sweden and Norway, some in Louisiana from the Bahama Islands, some in San Francisco from the Orient, and other scattered cases here and there. It is important, I think, that the United States Government should take up this question. We had a case in one of the hospitals in Cincinnati, in which the diagnosis of leprosy was fairly positive. The patient was a negro soldier who had spent four years in Cuba, and when we asked the health officer of the city what to do with him, we were told to let him go. I think it is dangerous that these patients should be allowed to remain in localities where they will be in free communication with other people.

DR. MARCUS HAASE, Memphis, Tenn.: I would not have had the opportunity of seeing a case of leprosy had it not been for this lepra fever. I would like to ask Dr. Dyer what percentage of these patients have this fever after the disease is fully developed?

DR. S. T. DARLING, Ancon Hospital, Canal Zone: The subject of leprosy is a very important one in the United States at this time when soldiers who have served in the Philippines and where employees from the Canal Zone are returning to take up permanent residences in various parts of the country. In the Canal Zone we have had no case of leprosy among Americans, and but one in a European. Our quarantine officers have been alert and active in the detection of the cases passing through their hands. We find that the diagnosis of the nodular form of the disease is easy. In fact, several of our cases have been detected by district sanitary inspectors, who are laymen. The anesthetic type of the disease presents greater difficulties. In these cases it is important and necessary in the examination to strip the patient and look for the presence of the characteristic annular areas of anesthesia and discoloration of the skin on the back, breast, abdomen and buttocks. These cases frequently present circular ulcers on the feet between the second and third toes. We have at times removed parts of the enlarged ulnar nerve for diagnosis

and failed to detect bacilli. The x-ray as a diagnostic aid has been used by Dr. A. B. Herrick, Ancon Hospital, for, in association with trophic ulcers of the feet in the anesthetic type there is a definite atrophy of the phalanges near the ulcer, which is well shown in radiographs. I believe Scheube has called attention to the fever of leprosy, but I do not think it is of much importance in the diagnosis of cases of leprosy of the anesthetic type.

DR. WILLIAM LITTEKER, Nashville, Tenn.: I was greatly interested in Dr. Dyer's explanation of the fever in leprosy. I think he is correct when he states that it is due to some form of intoxication. This intoxication is in all probability due to the toxins, or disintegrated products of the lepra bacillus. It seems that the patient gets better several days after the fever. This would indicate that the liberated lepra toxins would cause an increase in the opsonic power of the blood, similar to that seen as a result of tuberculin administration. While I do not know whether or not it is feasible, I would suggest taking an emulsion of the lepra bacilli after their growth on a proper medium and injecting the bacilli as a means of treatment.

DR. I. DYER, New Orleans: I again wish to make the statement that my paper was not an academic presentation of the subject, but rather a discussion of its salient features, because of the evident ignorance of the disease in our own country. Drs. Duval and Gurd, the pathologists of Tulane College, intend to present to the Society for the Study of Tropical Medicine a culture of the lepra bacilli which they have successfully carried on since last December, and we have already considered the elaboration of a vaccine. We hope, before another year has gone by, to have something to report in that line. In my paper, I purposely omitted any discussion of the subject of the laboratory diagnosis of leprosy. The discussion of anomalous types of the disease is largely covered in the portion of my paper which I omitted in reading. With us, and in all countries where the disease is fairly virgin, the anesthetic type is much more difficult to recognize than the tubercular. Such cases have been mistaken for syringomyelia by neurologists.

With reference to lepra fever, we have considered only that fever which occurs after the disease is well defined, and not that observed in the prodromal stage. In most of the cases of skin leprosy, which we have termed the tubercular type, this fever is often observed after the disease is well developed. As these cases have improved—and fully 90 per cent. of our cases have undergone a high degree of amelioration—the fever has always been associated with the improvement. In Louisiana, leprosy has been recognized and demonstrated since 1778.

THE SIGNIFICANCE OF EDEMA OF THE SOFT PALATE

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Not infrequently an apparently trivial symptom may be the expression of a serious affection, and if it is unheeded and the opportunity for active treatment allowed to pass it may lead to a fatal termination before its true significance has been appreciated. Such a symptom is edema of the soft palate, and especially the uvula. When observed its possible gravity must be seriously considered. Edema of the soft palate chiefly involves the uvula, but may affect the faucial pillars, especially the posterior, or even the lateral pharyngeal wall. The uvular swelling may be slight, appearing as a glistening drop at its tip, or may be so massive that the faucial isthmus is occluded and breathing becomes impeded. The most frequent and at the same time trivial type is found in those who use the voice excessively, such as professional speakers, or improperly, even for a short time, such as impromptu orators. This is illustrated by the following case:

CASE 1.—A. G., male, aged 32 years, had excellent general health, but granular pharyngitis caused him to clear his throat frequently. He had been speaking every evening for a month at political meetings with no discomfort, when, after a long speech in the open air, he felt as if a foreign body was in the throat and was obliged to swallow constantly. Examination showed a bead-like swelling on the tip of the uvula, above which the mucosa was inflamed.

Such a case is an acute traumatic uvulitis and is purely local. No serious significance can be attached to it except that edema of any portion of the upper air-passages, it matters not how slight, carries with it the possibility of extension to the larynx, with all the seriousness that it implies.

Associated with general affections, as rheumatism, grip, etc., or with local conditions, as peritonsillar abscess, acute uvulitis is not infrequent, and in some cases of grip the brunt of the inflammation may be borne by the soft palate, with more or less swelling of the uvula.

Again, edema may occur as the result of direct traumatism, such as is caused by operations in this region and the application of the cautery to the tonsil, or it may occur in association with ulcerative processes of the mouth and pharynx, while sometimes it is seen as part of acute pharyngitis. In some individuals there exists a marked vulnerability to attacks of acute inflammation of the uvula with edema, so that on the slightest provocation pain and edema develop, causing difficulty in deglutition and possibly dyspnea.

Severe inflammation of the adjacent tissues is frequently attended with edema, especially in peritonsillar abscess, when serious symptoms may result from the enormously swollen uvula, and also from the glottic edema which may be associated with it. In peritonsillar abscess of any duration, edema of the adjacent tissues is a part of the morbid process and, in severe cases with much pus, an active factor in its production is blocking of the intercellular spaces with leukocytes, the blood channels being dilated, so that the escape of fluid into the tissues becomes conspicuous. An exaggerated case of this type, in which the edema was limited to the uvula, is the following:

CASE 2.—A man of 43, an abstainer from alcohol, in perfect general health, would have a peritonsillar abscess at intervals of one or two years; and at the time the edema occurred, the tonsillitis had lasted three days, when I first saw him. The right tonsil was involved and the most striking object on examining the throat, was the enormous uvula, filling up the space between the tonsils and causing great difficulty in swallowing. It resembled a nasal polyp; when it was incised, considerable fluid escaped, giving great relief. The edema disappeared after the evacuation of the peritonsillar pus collection, which was accomplished at the same time.

In some cases edema is a prodromal symptom of acute articular rheumatism, occurring as a symptom between attacks or seen in conjunction with gout. True gout in this relation is uncommon in this country, but is more frequent abroad and may show as an acute faucitis with edema of the uvula, which disappears as a gouty inflammation suddenly develops elsewhere. In such cases, described by Lermoyez¹ as acute pharyngeal gout, the edema is prominent and, as a prodromal symptom of a grave disorder, demands the most particular care. There is a sudden onset of faucial inflammation and fever, and the patient complains greatly of sore throat, but the pain is in excess of the objective symptoms, as the inflammation is limited.

1. Lermoyez: *Ann. d. mal. de l'oreille*, May, 1902.

The most conspicuous symptom, however, is uvular edema. There is never exudation, as in some other forms of tonsillitis, and after lasting for two or three days the symptoms disappear, to be replaced by an attack of gout elsewhere. Such pharyngeal symptoms, but less severe, may precede an attack of rheumatism, lumbago, sciatica, etc., and it will often be found that edema of the uvula is present, although frequently not observed by the physician, as it disappears in a few hours on development of frank rheumatism.

It has seemed to me that these cases may be divided into two fairly well-defined classes; those in which the organisms concerned in the throat affection possess excessive power of producing toxins and which are clinically characterized by edema in the throat and disturbance of the general metabolism, while in the other class the toxin production is limited and the organisms are characterized by local exudation. The arthritic diathesis at times seems to play a prominent rôle and, when a predisposed individual is exposed to chilling or dampness, pharyngitis or faucitis with edema is apt to ensue promptly, to be followed by an outbreak of so-called rheumatism. In another group of cases the throat manifestations are more mild, but characterized by the edematous uvula. There is fulness, increased during deglutition, the muscles feel rigid and the mucous membrane is inflamed. The edema, however, is not of sufficient intensity to cause serious symptoms, but is significant as a local expression of a general impairment of metabolism. The following patient shows this condition:

CASE 3.—The patient, a man aged 25 years, runs an elevator and is continually in a draught. He had two attacks of sore throat the previous year in which the uvula only was involved; it was so swollen that he could not swallow food. Each attack was followed by rheumatism involving the knee, shoulder and ankle-joints. The present attack began with a sore throat which caused little annoyance for a week, when the uvula suddenly became swollen and prevented the patient from eating. Examination showed it to be purplish-red, edematous, with congested blood-vessels ramifying over the surface; and its tip, lying on the base of the tongue, produced a constant desire to swallow. Six hours later this entirely disappeared, the shoulder and knee-joint became inflamed and the patient suffered for several weeks with rheumatism, but had no further edema of the uvula.

In severe types of faucitis, as erysipelas or septic infections, edema of the uvula is nearly always an accompaniment and is most serious, as it signifies a grave type of infection with tissue destruction, while the imminent danger of glottic edema is always present. In erysipelas, either as an extension from the dermal surface or, more rarely, arising as a primary pharyngeal infection, the swelling is so great that even a small degree of edema has a most grave significance and its development seriously aggravates the dyspnea and general prostration. In chronic specific affections, as tuberculosis and syphilis, the development of uvular edema may occur late and is significant of destructive local lesions with grave general debility.

As an indication of serious organic changes in the kidneys, edema of the uvula should arouse suspicion, as it may be the only symptom of approaching uremia, although edema of the larynx is more frequently observed as a symptom in this respect. Edema of the uvula is rare in acute nephritis, but occurs in cases of scarlet fever, in which the edematous uvula represents both the virulence of the local infection and the sub-

sequent toxic nephritis. F. Berine² reports an instructive case in a man of 35. There was an indefinite acute febrile attack with albuminuria, and the soft palate became edematous. The pharyngeal condition rapidly disappeared under treatment directed to the renal affection. While not frequent in chronic nephritis, except as a terminal symptom, it may be the first evidence of a general hydremia, the result of venous stasis, or may be part of a so-called nephritis pharyngitis, in which the mucous membrane shows atrophic disturbances with hemorrhagic streaks over the soft palate and posterior pharyngeal wall. In these cases it will be found that the local affection is the expression of a toxemia and, with but few exceptions, the kidneys are the underlying cause or, what is practically the same, there is high arterial tension with arteriosclerosis, and these organic changes show themselves both in the cardiac and renal structures. It may also be a prominent symptom of uremia in chronic nephritis, and then presents the most grave aspects, as the following case shows:

CASE 4.—The patient, E. K., a man aged 38, a machinist, used alcohol to excess for many years. When first seen at my clinic at the Stetson Hospital, he complained of dyspnea and dysphagia; the uvula was swollen, almost filling the faucial space and the larynx could not be seen. No history was obtained, as the patient was intoxicated, but there was no evidence of laryngeal involvement and the uvula was freely incised with considerable relief. As he lived close at hand, he was sent home and told to return if he had any difficulty with breathing, or if the improvement did not continue. Two hours later he was admitted to the hospital with great dyspnea and his wife stated that he had been constantly drunk for the past three weeks. He was weak, pale and sweating; could only whisper and could not lie down. The urine showed albumin, granular and hyaline casts and the condition was readily recognized as uremia. Under active treatment the uvula edema disappeared, but the general condition became worse; the patient developed wild delirium and died on the third day. In this instance the fatal termination was from the toxemia and not from the edema, as the latter entirely disappeared before death.

While edema here does not produce a lethal issue, it always presents a serious aspect on account of the danger of laryngeal involvement, and this is especially true in that group of vasomotor cases which are angioneurotic in character. Such cases represent a local manifestation of a general condition, intestinal toxemia at times being the underlying factor. An instance of this kind is reported by Gardier,³ in which edema occurred two hours after a meal, relief being obtained by active purgation. The swelling of the uvula in angioneurotic edema may be enormous, with great difficulty in swallowing and symptoms of suffocation, but active treatment gives prompt relief from the terrifying symptoms. For a time it may be the only symptom and cause great concern, or it may appear in conjunction with wheals on the dermal surface, while in several cases which I observed, it disappeared on the outbreak of localized swelling of the skin. A similar case was reported by Ballinger,⁴ in which edema of the pharynx suddenly appeared in a nervous young woman suffering from hay-fever, then rapidly disappeared, to be replaced by an attack of urticaria. Likewise, Hinsdale⁵ reported a case in which the body was covered with urticaria, the uvula was edematous and allowed the entrance

2. Berine, F.: *Rev. de méd.*, Paris, November, 1899.

3. Gardier: *Echo méd. du nord*, Aug. 8, 1897.

4. Ballinger: *Jour. Laryngol., Rhinol. and Otol.*, May, 1896.

5. Hinsdale: *Philadelphia Polyclin.*, 1898, vii, No. 31.

of air only, with difficulty, but there was no swelling of the laryngeal tissues. Such conditions may occur in digestive disorders or following operation with considerable traumatism, and may also be associated with intranasal changes such as acute inflammation with pus formation. Acute nasopharyngeal inflammation may be its cause when its gravity is dependent on the degree of infection.

So far as drugs are concerned in the production of edema, it can be appreciated that corrosive poisons, when swallowed, may produce it, but other than this the presence of edema would hardly suggest such a factor, although Price-Brown⁶ saw a case in which, following the application of 10 per cent. cocaine to the nasal chambers, edema of the uvula rapidly ensued several times, spontaneously disappearing a few hours later. In a case recorded by Ward⁷ edema followed a large dose of scopolamin. Many miscellaneous causes may play a part in its development, but in the majority of cases traumatism, either direct or indirect, is a most important factor. The former is illustrated by the edema caused by swallowing corrosive poisons, or by acids and burns, but in such cases it presents little significance, as the effect of the poison is of greater import elsewhere and its only significance is in indicating other grave conditions. In this connection a case is reported by Foster,⁸ in which a man of 54 years drank scalding coffee; there was severe pain localized to the soft palate and the voice was lost. Examination revealed the arches and tonsils concealed by the greatly distended uvula; there was no edema of the larynx, and cure was obtained in a short time.

Edema of the tip of the uvula, resembling a drop of fluid, is frequently found and causes little concern. Nocturnal mouth-breathing is a not infrequent factor, while the hawking of many individuals with postnasal catarrh, in their efforts to remove inspissated secretion, is also a traumatic cause. Reardon⁹ reports a case of edema caused by attempts to dislodge crusts from nasal suppuration. Vomiting may act in the same manner; Shurly¹⁰ reports such a case, in which vomiting produced great intumescence of the uvula.

The question arises as to why the uvula should present edema in such a number of conditions, some only local and of little import, while others, such as those associated with renal lesions, present the most grave significance. Two factors are especially concerned in the mechanism, one already mentioned, that of traumatism, and the second, i.e. structure of the uvula. At this portion of the palate the mucous membrane is thicker and less compact than that of other parts, especially so at its tip, so that it tends to favor the production of serous exudation here rather than at other points. In addition, edema occurs where the submucosa is well developed, and such is the case here to an unusual degree, as the bulk of the uvula is composed of areolar tissue with a loose-meshed arrangement of the cells, so that even slight congestion may be accompanied with a rapid development of edema. The size of the uvula plays some part in this respect, as, when large and broad, it is more apt to show edema than when thin or short, the latter form usually showing a drop on the tip,

while the broad uvula presents a massive type with serous exudation in the deeper layers.

The symptoms vary from slight tickling or scratching to a feeling as if a foreign body was present and producing suffocation. Where edema is slight the subjective symptoms may be absent, while there may be considerable dropsy unnoticed by the patient on account of the severity of the local conditions producing it, such as a peritonsillar abscess. In many cases the condition is most harassing because of the constant attempts to clear the throat and on account of the irritation of the tongue and epiglottis by the enlarged uvula; nausea and vomiting may be produced, while a hacking cough is frequent. The voice becomes hoarse and this hoarseness is enhanced in severe cases by excessive mucous secretion. All the symptoms are aggravated by the recumbent posture, and if the edema is extensive it is impossible for the patient to lie down without attacks of suffocation.

The appearance depends on the amount of serous exudation and, while in the majority of cases its original form remains preserved, yet, when the edema is excessive, it loses its outline and may become corrugated, or appear as a semitransparent ovoid mass. Finally the color may be significant of the proximate etiologic factor, for when the edema is the result of passive congestion the uvula is gray or blue-gray, like a translucent grape, while the inflammatory type, indicative of local changes, is characterized by a red hue increasing in intensity as the intumescence becomes augmented, until, in excessive infiltration, the vascular stasis is productive of a purple color. The color alone, however, is of little value, as the edema can never be mistaken, but the important factor is its grave significance in some cases and the necessity in all cases of ascertaining the underlying factors concerned in its production.

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ULTIMATE RESULTS IN THE TREATMENT OF PULMONARY TUBERCULOSIS WITH MERCURY SUCCINIMID

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The treatment of pulmonary tuberculosis with mercury has been highly extolled in the past few years by Dr. Barton Lisle Wright, of the United States Navy. The results obtained seemed so remarkably successful that a series of cases were selected and were placed under the mercury treatment.

A variety of cases were selected in an endeavor to ascertain in which type the treatment gave the best results. The classification of the different stages of the disease is the same as the one adopted by the National Association for the Study and Prevention of Tuberculosis.

The treatment consisted in the administration of a sterile solution of mercury succinimid in 1/5 gr. doses every second day, as advocated by the originator of this method of treatment. The hypodermatic injections were given into different portions of the body, including the buttocks, loose tissues of back and abdomen, and into the deltoid muscle. An attempt was made to administer the mercury intravenously and several injections were given into the median basilic vein. The intravenous route, however, was soon abandoned, as it proved unsatisfactory since it required some preparation of the

6. Price-Brown: Diseases of Nose and Throat, F. A. Davis Co., Philadelphia, 1900.

7. Ward: Philadelphia Med. Jour., Nov. 12, 1898.

8. Foster: West. Med. Jour., October, 1898.

9. Reardon: Boston Med. and Surg. Jour., May 17, 1898.

10. Shurly: Diseases of Nose and Throat, D. Appleton & Co., New York, 1900.

part and carried with it the element of danger of a possible thrombus formation.

The injections into the deltoid muscle seemed to have been preferred by most of the patients for the following reasons:

1. The part was easily exposed and easily sterilized.
2. The patient did not suffer any discomfort from sitting, as was often the case when the injections were given into the buttocks.
3. The patient could sleep and turn from side to side without suffering from the painful swelling which would often result at the site of the injection.

Twenty cases in all were selected, there being ten men and ten women in the series. The enumeration of the patients is in the order of the number of the injections that each had received. The hygienic and dietetic treatment of the patient was not changed during the period in which the mercury was administered. The patients were given the regulation amount of milk and eggs and were encouraged to spend more of their time in the open air. The examination of the sputum was performed in all cases, the urine and feces of many of the patients were also examined for tubercle bacilli, and blood-cultures were made in over one-half of the cases. Only those patients were selected who showed undoubted signs and symptoms of the disease, who had been for a long time under observation and whose cases were in the majority of instances of a chronic, non-active and generally favorable type.

The range of ages of the men was 20 to 55 years; average 41 years; the range of ages of the women was 18 to 62 years; average, 38.4 years.

The types of cases included in the series were as follows:

Incipient—arrested or stationary.....	2
Incipient—slowly progressive	2
Moderately advanced—had improved under hospital treatment	2
Moderately advanced—apparently cured.....	2
Moderately advanced—stationary or arrested.....	6
Moderately advanced—showing slow deterioration of general condition	1
Miliary—bed patients, progressive.....	2
Advanced—bed patients, progressive.....	2
Laryngeal—moderate advancement in lungs.....	1

According to activity of disease the cases may be classified as follows:

Arrested, stationary and apparently cured, 10 cases. 50 per cent.
Improved under general treatment, 3 cases..... 15 per cent.
Active, with local or constitutional symptoms, 7 cases. 35 per cent.

In view of the very striking ultimate results it has not seemed necessary to attempt to describe the course of the patients' condition during the treatment. In a general way it may be said that some showed temporary improvement in their condition, but it could not be very definitely attributed to the mercury, as it differed in no way from that in the non-treated cases. All the patients were receiving the general hygienic and dietetic treatment at the same time. Eventually, however, all the patients began to deteriorate, almost in direct proportion to the number of injections that each had received. From a careful study of the cases during the course of treatment it was observed that mercury had no specific effect on the course of the disease, and showed no tendency toward checking the local involvement in the lungs. Several patients (Cases 1, 3, 5 and 6) showed temporary improvement in their general condition, but it was probably due to the therapeutic action of the mercury in the associated anemia. These pa-

tients, however, shortly afterwards began to fail in health, and the deterioration was more rapid than in those who had not received the mercury. The quiescent lesions in the lungs became active, infiltration into the healthier tissues of the lungs occurred, cough and profuse expectoration and marked constitutional symptoms became progressively worse, thereby causing grave nutritional disorders, until the patient finally succumbed to the disease. A predisposition to hemorrhage manifested itself in several cases (Nos. 1, 3 and 7), particularly in the fibroid type, and it was the immediate cause of death in two (Cases 1 and 7). Salivation and pains in the bones developed in three of the cases (Nos. 3, 4 and 15), and treatment had to be abandoned on this account. Two of the patients, who received thirty injections each, had a positive history of a syphilitic infection during their earlier life (Cases 2 and 3), and the mercurial injections in these two patients were borne with greater impunity; one of the patients (Case 3) was alive fourteen months after the last injection with slight changes in his general condition, but occasionally was confined to bed on account of hemoptysis, or for a transient pleuritic affection. The only other patient (Case 4) who is alive, of the group that received six or more injections, is now suffering from a pyopneumothorax and has had several aspirations performed. For the past two months this patient has lost rapidly in weight, is very weak, and death with her is only a matter of weeks.

ENUMERATION OF PATIENTS ACCORDING TO NUMBER OF INJECTIONS AND ULTIMATE RESULT ONE YEAR AFTER TREATMENT

Case.	Injections.	Result.	Case.	Injections.	Result.
1.—D. F.	30	Dead	11.—E. D.	10	Dead
2.—N. B.	30	Dead	12.—M. F.	8	Dead
3.—J. M.	30	Living	13.—T. M.	8	Dead
4.—M. M.	22	Living	14.—F. B.	6	Dead
5.—M. N.	15	Dead	15.—W. H.	4	Dead
6.—M. D.	15	Dead	16.—J. J. K.	4	Living
7.—J. O'D.	12	Dead	17.—R. H.	4	Living
8.—R. S.	10	Dead	18.—M. R.	3	Living
9.—J. H.	10	Dead	19.—M. C.	2	Living
10.—J. K.	10	Dead	20.—A. S.	2	Living

One year after the treatment had been discontinued the following results were noted in the patients who had received the mercury injections. Of the fourteen patients who received six or more injections twelve died from two weeks to six months after the last injection. Of the remaining two (Cases 3 and 4) of the fourteen patients who are alive, one (Case 3) has had repeated hemorrhages and is occasionally confined to bed, the other (Case 4) has had several aspirations because of pyopneumothorax, and is rapidly failing in health. This enormous percentage of deaths, namely, 85.7 per cent., among those patients who received six or more injections, can be attributed only to the use of mercury, simply from the fact that the expectation of life in many of the cases chosen was very favorable indeed. In fact, on account of the age of the patients and the chronic arrested type of the disease, they were the kind of patients who live long and have a favorable prognosis. Further, it may be noted that of the six patients who received four injections or less, five are alive and only one (Case 15) died, giving a mortality of only 16.6 per cent. as compared with the mortality of 85.7 per cent. of those who received a greater number of injections. Of the patients who had received the fewest injections, 83.4 per cent. are alive, while only 14.3 per cent. are alive of those who had received a greater number of injections.

To sum up, of the fourteen patients who received six or more injections, twelve, or 85.7 per cent., died, and

two, or 14.3 per cent., lived. Of those who received four injections or less, one, or 16.6 per cent., died, and five, or 83.4 per cent., lived.

CONCLUSION

From the above results the only deduction that can be drawn is that mercury, as recommended, has utterly failed as a specific agent in the treatment of pulmonary tuberculosis, and is positively injurious and detrimental to one afflicted with tuberculosis.

I am greatly indebted to Dr. A. P. Francine and Dr. H. R. M. Landis for the many suggestions offered in the preparation of this paper.

REPORT OF CASES

CASE 1.—Thirty injections.

D. F., a white man, aged 20, single, bookbinder, came under observation Sept. 20, 1908; died Aug. 25, 1909.

Type: Incipient, active.

The patient was well developed, well nourished and of medium stature. Infiltrations in both upper lobes were slowly progressive.

Result: The patient improved for five weeks, then began to fail in health rapidly, had several hemorrhages and died six months after last injection.

Reason for discontinuing treatment: poor health, hemoptysis.

CASE 2.—Thirty injections.

N. B., a white woman, aged 34, married, housewife, came under observation Oct. 30, 1908; died March 3, 1909.

Type: Moderate advancement, stationary.

The patient was a frail woman of medium stature and showed several resulting lesions of a previous syphilitic infection.

Result: She did not improve, but failed in health and died three months after last injection.

Reason for discontinuing treatment: Failing health.

CASE 3.—Thirty injections.

J. M., a white man, aged 45, married, a laborer, came under observation July 3, 1908, and was alive April 1, 1910.

Type: Moderate advancement, stationary.

The patient was large, well developed and fairly well nourished, with a history of a previous syphilitic infection.

Result: He improved for several weeks; a few months later hemorrhages developed which confined him to bed. One year after injections the patient is alive, but much weaker.

Reason for discontinuing treatment: Patient began to show signs of salivation.

CASE 4.—Twenty-two injections.

M. M., a white woman, aged 34, married, housewife, came under observation Dec. 17, 1906, and was alive April 1, 1910.

Type: Moderate advancement, stationary or arrested.

The patient was well developed, well nourished and of short stature, with no constitutional symptoms.

Result: There was no apparent improvement. The patient is alive one year after last injection in a very much weakened condition, and is suffering from pyopneumothorax.

Reason for discontinuing treatment: Salivation.

CASE 5.—Fifteen injections.

M. N., a white woman, aged 34, widow, housewife, came under observation Nov. 12, 1903; died Jan. 18, 1909.

Type: Advanced, progressive.

The patient was of medium stature, of fair development and nutrition.

Result: There was slight improvement for two weeks, then she failed rapidly in health and died one week after last injection.

Reason for discontinuing treatment: Patient very weak.

CASE 6.—Fifteen injections.

M. D., a white woman, aged 47, widow, housewife, came under observation Aug. 26, 1908; died March 29, 1909.

Type: Moderately advanced, progressive.

The patient was of small stature, of fair development and poor nutrition.

Result: She showed slight improvement for two weeks, but died two months after last injection.

Reason for discontinuing treatment: Patient refused injections.

CASE 7.—Twelve injections.

J. O'D., a white man, aged 48, single, a laborer, came under observation April 9, 1909; died March 14, 1909.

Type: Moderately advanced, progressive.

The patient was large, of good development, good nutrition and with no constitutional symptoms.

Result: There was no change in condition during treatment. Four weeks after last injection the patient had several severe hemorrhages and died two weeks later.

Reason for discontinuing treatment: Patient refused injections.

CASE 8.—Ten injections.

R. S., a white woman, aged 32, married, housewife, came under observation Dec. 16, 1908; died Jan. 8, 1909.

Type: Miliary progressive.

The patient was of large stature, good development, good nutrition.

Result: The first two injections were followed by a drop in temperature from 104 to 98 F. The patient failed rapidly in health, and died two days after last injection.

Reason for discontinuing treatment: Death.

CASE 9.—Ten injections.

J. H., a white man, aged 40, single, a laborer, came under observation Oct. 14, 1908; died May 8, 1909.

Type: Moderately advanced, improved on hospital regime.

The patient was of good development and good nutrition.

Result: There was no improvement. The patient progressively failed in health and died four months after last injection.

Reason for discontinuing treatment: Patient refused injections; felt worse.

CASE 10.—Ten injections.

J. K., a white man, aged 31, single, a laborer, came under observation Oct. 23, 1908; died July 31, 1909.

Type: Incipient, slowly progressive.

The patient was of good development, good nutrition and apparently in robust health.

Result: There was no change; four weeks later the patient began to show signs of slow deterioration and died six months after receiving last injection.

Reason for discontinuing treatment: Hard painful swelling.

CASE 11.—Ten injections.

E. D., a white girl, aged 18, single, a bookbinder, came under observation Oct. 19, 1908; died Jan. 5, 1909.

Type: Miliary, progressive.

The patient was of small stature, frail development and fair nutrition.

Result: There was no improvement. The patient failed rapidly in health, and died three weeks after last injection.

Reason for discontinuing treatment: Rapidly failing health.

CASE 12.—Eight injections.

M. F., a white woman, aged 24, single, a factory girl, came under observation June 5, 1908; died Jan. 6, 1909.

Type: Moderately advanced, improved under hospital regime.

Result: The patient became worse under mercury injections, and died two weeks after last injection.

Reason for discontinuing treatment: She asserted that she felt worse; refused injections.

CASE 13.—Eight injections.

T. M., a white man, aged 38, single, a fireman, came under observation June 20, 1908; died Dec. 27, 1903.

Type: Advanced, progressive.

The patient was of medium stature, fair development, poor nutrition and asthenic.

Result: The patient became worse and died one week after last injection.

Reason for discontinuing treatment: Death.

CASE 14.—Six injections.

F. B., a white man, aged 55, widower, laborer, came under observation Oct. 26, 1908; died Feb. 15, 1909.

Type: Moderate advancement, stationary.

The patient was of small stature, poor development and fair nutrition.

Result: There was no improvement. The patient died six weeks after last injection.

Reason for discontinuing treatment: Patient refused injections.

CASE 15.—Four injections.

W. H., a white man, aged 43, widower, plumber, came under observation Dec. 10, 1908; died May 7, 1909.

Type: Laryngeal, moderate advancement in lungs.

The patient was a well-developed adult and of fair nutrition.

Result: He became salivated after four injections, complained of pain in bones, and died four months later.

Reason for discontinuing treatment: Salivation.

CASE 16.—Four injections.

R. H., a white woman, aged 46, widow, housewife, came under observation Sept. 15, 1908, and was alive April 1, 1910.

Type: Incipient, arrested.

The patient was of good development and good nutrition.

Result: There was no change, and she is practically in same condition one year later.

Reason for discontinuing treatment: Painful swelling.

CASE 17.—Four injections.

J. J. K., a white man, aged 49, a single laborer, came under observation Dec. 7, 1907 and was alive Dec. 10, 1909.

Type: Moderate advancement, apparently cured.

The patient was of large stature, of good development and good nutrition.

Result: There was no change in condition; one year later the condition is same as when treatment was discontinued.

Reason for discontinuing treatment: Patient refused injections.

CASE 18.—Three injections.

M. R., a white woman aged 62, single, engaged in housework, came under observation April 1, 1907, and was alive April 1, 1910.

Type: Moderate advancement, apparent cure.

The patient was of frail development and fair nutrition.

Result: There was no change and the patient is alive one year later in same condition.

Reason for discontinuing treatment: Patient refused injections.

CASE 19.—Two injections.

M. C., a white woman, aged 53, single, engaged in housework, came under observation Feb. 16, 1907, and was alive April 1, 1910.

Type: Moderately advanced, stationary.

The patient was a well-developed adult woman of good stature and fair nutrition.

Result: There was no change, and the patient is alive in practically same condition as a year ago.

Reason for discontinuing treatment: Patient refused injections.

CASE 20.—Two injections.

A. S., a white man, aged 39, a single laborer, came under observation Oct. 11, 1908, and was alive April 1, 1910.

Type: Incipient, arrested.

The patient was of good development and fair nutrition.

Result: There was no change in condition, and the patient is alive one year later in same state of health.

Reason for discontinuing treatment: Patient refused injections.

1002 Jackson street.

Pannus in Trachoma.—The distinguishing features of pannus are innumerable small blood vessels tortuous in their course, running down through the cornea. It may involve only the upper part or all of the cornea. If much of the cornea is involved, or if the disease is not early arrested, there will be changes in the corneal epithelium, resulting in haziness of the tissue, which is rarely entirely absorbed after the disease has been arrested. The younger the subject, the better will be the chances for complete absorption of the exudate.—C. B. Wylie, in *Journal of Ophthalmology and Oto-Laryngology*.

PLASTIC SURGERY OF THE PELVIC STRUCTURES*

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As the members of this Section know, this is not the first time that I have addressed it on the subject chosen. I seek this opportunity because, I confess in advance, I am greatly disappointed in the results obtained by surgeons in various parts of the country. Patients come to me from widely scattered localities, having been operated on by surgeons of repute and of ability beyond question. Of course, it should be borne in mind that the cases thus seen are exceptional. If the experiences teach anything, the criticism applies to the method, rather than the operator.

REPORTS OF CASES

In illustration of this I shall cite three recent cases in young, healthy women.

CASE 1.—Mrs. B., aged 29, underwent instrumental delivery of a large child. An extensive laceration of the perineum, not involving the rectum, resulted. Six weeks after the delivery she was operated on by two of the leading surgeons of her city. On her admission to my hospital there was a marked cystocele, the cervix protruding through the vulva, with a pronounced rectocele. The posterior wall of the vagina had been cut away, leaving only a thin band of cicatricial tissue covering the rectum. The uterus was enlarged. There was a deep, double laceration of the cervix, with eversion.

A large, elliptical portion of the thickened anterior vaginal wall was excised and the anterior pelvic floor coapted by a line of deep, double buried tendon continuous sutures. The anterior vaginal wound was also closed by a single line of buried tendon sutures. The everted, lacerated cervical wounds were resected and closed with continuous tendon sutures. The perineal dissection was of course very difficult, but lateral flaps were secured by a deep dissection on either side, exposing the transversi, which were coapted and held in place by a double continuous buried suture. The posterior vaginal flaps were coapted by a single line of running buried sutures. An iodoform wool tampon in the vagina was the only dressing. The convalescence was easy and uneventful, and the restoration to the normal condition complete.

At the time of discharge from the hospital it would have been difficult to determine that the patient had ever been pregnant.

CASE 2.—The patient was a woman, aged 22. Conditions were so nearly like those in Case 1 that they do not require recapitulation.

CASE 3.—The patient was operated on a little more than a year ago by a leading surgeon in one of our Boston hospitals, and as in previous cases there was complete prolapse of the cervical portion of the uterus, with a marked cystocele and rectocele. Although in good general health the patient had been a great sufferer and a complete invalid for the entire year. Here also the posterior wall of the vagina had been dissected away, leaving very little covering to the rectum, but the pronounced feature was a constant purulent discharge from the vulva on both sides. This had been attributed to suppuration of the Bartholin glands. Much to my surprise the dissection revealed a long stay suture of silkworm gut, leaving a suppurating sinus throughout the entire tract where it had been buried.

These cases coming to me within a few weeks have impelled me to call the attention of the profession again to what I consider still a very common fault in technic. I must conclude that the basic principles of the operation are still in a measure misunderstood. A simple

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

definition of the term "plastic repair" of any of the pelvic structures would be to restore them to their normal anatomic relationships. The time at my disposal permits only the briefest reference to the anatomy and function of these most important structures.

The transversi muscles, interdigitating and blending with the great levator group, with the associated fascia, are the recognized supports of the pelvic floor. Their central juxtaposition forms the much-discussed perineal body.

REPAIR OF PELVIC FLOOR

The reunion and restoration of these sundered structures is the object sought by the surgeon. To reunite them they must be anatomically exposed. They must be retained in juxtaposition in aseptic condition and reunion or restoration necessarily follows. As I have long insisted, the dissection should be made by a free separation of about the posterior third of the vagina, quite to the crest of the rectocele, and sufficiently wide laterally to expose freely the torn retracted structures. This means a wound that, to one first seeing it, would seem unnecessarily large, but unless the dissection is wide and complete it is very difficult, often impossible, to obtain free access to the important structures thus widely and for a long time separated.

So far as possible, I deprecate the invention of new instruments unless they may be devised to accomplish an important purpose.

In the separation of the vaginal muscle from the rectum the cicatricial structures are often difficult of dissection. The cutting edge of the knife I use is at an angle of 45 degrees with the line of the handle. When the parts are held tense with the fingers in the rectum, the use of this knife facilitates dissection, especially of the retracted cicatricial attachment of the transversi muscles. I consider the needle important and have found no reason to change it in any material respect, since it was presented to the profession by me twenty-five years ago. It is strong, of convenient length, set in a handle with a marked curve and a modified Hagedorn point. The eye is of some importance, since the slot on either side catches and holds the suture, preventing it from slipping.

Two fingers of the left hand retained in the rectum during the operation aid materially in suturing. After a little experience it is easy to coapt and hold in retention the sundered structures with three or four strong double tendon continuous sutures. Light running sutures, best applied with the Hagedorn full curved needle easily coapt the less important structures, covering in the deep layer of sutures, while they themselves remain buried. If, for any reason it may seem desirable, it is perfectly easy to reform a hymen. The external wound is sealed with iodoform collodion, which, although it may loosen in two or three days, I consider a valuable protection from vaginal infection.

When the perineal rupture is complete, involving the sphincter and the bowel, the operation is almost as simple and easy. The vagina and rectal structures are carefully dissected. The rectum and sphincter are coapted, with a light line of double tendon sutures, the only care requisite being that they should be placed in aseptic structures. This slightly inverts the mucous membrane of the intestine. It is important to rejoin the sphincter fibers, as pointed out by Emmet many years ago. I sometimes use an independent suture of the sphincter muscle in order to secure a more firm coaptation. The posterior wall of the vagina is closed in a

similar way, reducing the factors of the problem to those of an uncomplicated perineal laceration. The structures are sometimes so attenuated and the rectum so contracted that a successful operation requires patience, a careful dissection and a delicate technic but I do not now recall a single case in which I have not had a complete restoration anatomically, with complete restoration of function. In the rectum I use a large drainage-tube, with a cravat attachment of iodoform gauze, to be left for some days.

VESICOVAGINAL FISTULA

Almost every surgeon, even of to-day, is familiar with the monumental labors of my late great master, Marion Sims. The corner stone of his reputation was based on his cure of vesicovaginal fistula. As we review his operation from the standpoint of modern surgery and experience, we understand that his success was based on two factors. The first was his extraordinary skill in the careful dissection of the wound. I know of no operator to-day who excels, or perhaps, even equals the facile skill and dexterity attained by Sims. The second factor to which he attributed his crowning success was the use of silver wire sutures. These were applied with a skill which I have never seen equaled. Of course we now recognize that it was an aseptic suture, most difficult to apply and almost equally difficult to remove.

As I look back over the experience of those early years, I almost shudder over the worry and anxiety which I had in the imitation of the methods of this great man. I expected only to follow him afar off and never hoped to duplicate his great skill. As I now recall his experience, his first cure of vesicovaginal fistula was effected only after thirteen failures. Even to the end, his successes were the exception. The method which for a good many years I have employed first occurred to me after a considerable series of easy cures in cases in which I had closed wounds in the bladder from a variety of causes, from within the abdominal cavity. These were invariably simple in technic and perfect in result. A double continuous suture easily closed the wound with perfect coaptation, care being taken, of course, not to penetrate the mucous membrane of the bladder. Following this a retained catheter easily kept the bladder wall in a state of rest.

Profiting by this experience I made a wide dissection of the bladder from the vaginal wall and closed the bladder wound by a fine double tendon suture, which of course became buried. I then closed the vaginal wound as described in the operation for cystocele. The object of this extensive dissection was to obtain complete rest of the bladder wound during the process of repair, which is impossible when the vaginal attachment has been permitted to remain and the suture is taken through both the bladder and vaginal muscle.

Fortunately vesicovaginal fistula is far less common than formerly, and in the cases in which there has been a large destruction of the structures, the surgeon's skill and resources will be taxed to the utmost, but in every case of vesicovaginal fistula operated on as described I have had complete and seemingly easy cure.

HERNIA OF THE BLADDER

Hernia of the bladder, unfortunately, is often unrecognized and classed, in a general way, with cystocele. It is caused by the rupture of a portion of the strong fascia which goes to make up the pelvic floor. It may not be always easy to differentiate it from cystocele,

and differs from it chiefly in that in the latter the whole anterior pelvic fascia is relaxed instead of presenting a more severe lesion of it.

Its cure is equally easy and satisfactory. As in cystocele, it is generally wise to remove a certain amount of the anterior vaginal wall. Then it becomes necessary to make the lateral dissection sufficiently free to expose the strong pelvic fascia and intra-fold it by a carefully applied, medium-sized double tendon suture. Indeed, the operation differs so little, except in the recognition of its anatomic cause, that the surgical procedures are not unlike those for the cure of cystocele.

HEMORRHOIDS

Viewed from the standpoint of discomfort and suffering, the marked changes often seen in the hemorrhoidal structures hardly belong to the province of so-called minor surgery.

I consider the most important contributions to the technic of hemorrhoidal operations are those of Mr. Whitehead, now recognized and described in all textbooks. My modification of the operation consists in a free dissection, exposing the outer rim of the sphincter muscle and suturing the hemorrhoidal plexus of vessels just within its borders. This line of sutures is covered and buried by a careful rejoining with the finest of sutures.

Suturing at the base, before division, occludes the vessels and prevents hemorrhage. The delicate anal structures, carefully coapted and retained in an aseptic condition, unite primarily without suppuration, and when the sphincter muscle has been paralyzed by careful dilatation, these tissues are easily kept at rest with very little suffering. Here, too, I usually seal with iodoform collodion since the protection of the structures by it for even a day or two is important. Of course the rectum has been carefully cleansed and the large tube with the cravat of iodoform gauze applied. The three factors necessary for success are the following: first, the making of a free, skilful anatomic dissection; second, a careful reuniting of the weakened injured structures by the use of buried absorbable sutures, preferably kangaroo tendon, and, third, the making and maintaining of an aseptic wound.

I recognize more fully than my readers the almost dictatorial brevity of the description of this treatment of the above group of pelvic lesions. Any one of them might properly demand a detailed description covering the space given to the entire group. Some might consider that I have given undue importance to the personal factor of individuality in the description, but I am sure that any good surgeon, after a little practice, can do these operations equally well, or better.

I have long since ceased to tabulate in a numerical way these operations, since little is gained by enumerating the multiplied experience of years.

A distinguished English surgeon sometime since was present at an operation and made pertinent inquiry as to the percentage of failures. I referred him to the matron of my hospital, who replied with something of surprise: "Not one, Doctor, since I have been here." "But how long have you been with Dr. Marcy?" She replied: "More than twenty years." This statement may not be strictly true, but it is essentially so, and the credit belongs, at least in equal share, to the faithful, devoted services of my enthusiastic nurses.

180 Commonwealth Avenue.

ABSTRACT OF DISCUSSION

DR. D. T. GILMAN, Columbus, O.: Dr. Marcy is probably the pioneer in the use of this absorbable suture and he is entitled to great credit for it. He gets results undoubtedly, but I cannot get the same results from an absorbable suture that he does. Dr. Marcy's method of introducing a couple of fingers into the rectum does not appeal to me. He has doubtless acquired an automatic asepsis from long practice that I would not have, and others would not have. I formerly used a knife for denudation, but I have practically abandoned it and have gone back to the scissors. If I have a good pair of scissors I do not need to have the fingers in the rectum; I simply put the tissues on the stretch.

DR. W. H. GILBERT, Evansville, Ind.: Dr. Marcy's technic, as we all know, is a technic unsurpassed. His results have the same uniform excellence. We all know that in the after treatment of perineorrhaphy it is extremely difficult to keep the region aseptic. I think the plan of sealing the parts with collodion is a most excellent one. Personally, I have ceased to use douches after perineorrhaphy. The technic I follow is absolutely dry. I use dry sponges, seal the parts with collodion and exercise the most rigid care in the after technic. Three times a day the perineum is thoroughly cleansed by bichlorid solution, and a bichlorid pack of dry gauze adjusted. I don't believe it is possible in the region of the perineum to secure absolute asepsis no matter how careful a technic is followed and no matter how carefully you wall off the perineum with towels, or how carefully the buried sutures are inserted. I have abandoned the routine use of buried catgut or kangaroo sutures in all parts of the perineum. I get the best results from non-absorbable sutures in the skin covering of the perineum and absorbable sutures in the muscles, fascia and vagina.

Eight weeks ago in a case of complete laceration there was operation immediately after delivery with non-union. Two weeks afterward a second operation was done by the same surgeon, which was a failure. The last operation was done by myself ten days ago. The line of laceration of the rectum was closed with catgut sutures with the knot on the inside of the perineum without any of the catgut being in the rectum. It is impossible to put absorbable sutures in the rectum and not have infection. Two deep sutures of silk-worm gut were inserted with the needle devised by Dr. Marcy. The one point necessary in the securing of good results is that alluded to by Dr. Marcy, viz., the excellent care given by the nurse, with rigid asepsis in the after treatment. We all achieve better results in the hospitals because of the aseptic technic more readily maintained. On the other hand, if the sutures are placed without proper care and regard for rigid asepsis and the wound not sealed with collodion it is almost impossible to escape infection of the perineum from purulent discharge from the uterus if it be infected. In many cases of old chronic endometritis complicating lacerations of the cervix and perineum, mixed cultures may be obtained at any time. It is very difficult here, especially when the cervix is torn at the same time, not to have more or less infection, but the end results are uniformly good.

DR. C. LESTER HALL, Kansas City, Mo.: I offer, with all due respect to Dr. Marcy, an improvement on the collodion dressing. I believe that if we will use instead an application of sub-iodid of bismuth, which with water makes a paste and a thorough protection of the parts, we will not have the infections so much dreaded. It is a preparation that can be easily applied and reapplied by the nurse after douching, is not readily removed by a douche and furnishes an impermeable dressing. It is not irritating, as collodion may be.

DR. GEORGE ERETY SHOEMAKER, Philadelphia: I want to express my appreciation of improvement in personal results since learning to use the buried continuous suture in perineal work and abandoning in nearly all cases the silkworm gut suture used for so many years. If the mucous membrane of the posterior wall of the vagina is preserved, none cut away, it forms an apron clear out to the edge of the wound. All discharges from the uterus and vagina are carried over and emptied outside, so to speak, lessening the chances of infection. Unlike Dr. Marcy, I prefer to keep all fingers clean

for use in the wound. Carefully palpating the two edges of the recti, bring them together by continuous suture, then follow on down toward the surface, uniting the fascia and more superficial muscles that have been separated. Thus one gets perfect restoration and healing in practically every case. The patient has so much more comfort from not having to have the sutures removed afterward.

Dr. FRANK A. GLASGOW, St. Louis: I am surprised to hear the gentlemen speak of suppurations being so common, and also to have them deery the use of catgut. There has been much written about the repair of the perineum tending to confuse men and to make them think the operation far more difficult than it really is. Dr. Shoemaker anticipated what I wished to say, that he would preserve the posterior wall of the vagina. I do not think I have done a perineorrhaphy for twenty years in which I have removed the posterior wall of the vagina. It is an old operation, the same as Tait's, and one which I inherited from men before him, in which we simply raise up the posterior wall, extending the denudation up on either side of the vagina, up to the crest of the rectocele and then uniting the lateral parts. Under this procedure suppuration is the rarest thing in the world. There is no necessity for it, and I use chromicized catgut. Formerly I used the mattress sutures through from one side of the vagina and back again. Then when Tait taught us how to bury catgut I used that method and do not have suppuration. If a stream of water is used over the denudation down over the perineum carrying anything which should escape from the rectum downward suppuration will not occur and buried catgut may be used. There is no easier operation in gynecology than just this repair of the perineum, and every practitioner ought to be able to do it. Many men do not make a perineum. They simply denude a little and bring the skin together. You should raise up the posterior wall, extend the denudation high up into the vagina and on either side and bring the lateral walls together by buried sutures. You will thus have a good perineum and no suppuration.

Dr. H. O. MARCY, Boston: A man works best with the instruments with which he is most familiar. The two fingers in the rectum help not only in the use of the knife but in the application of the suture, making a double shoemaker's stitch. When one becomes a little used to the method one will not mind the loss of those two fingers for other purposes. I am glad to have the value of the nursing emphasized. It is a large factor after we are through with our surgical work.

The late Dr. Jenks of Detroit was the first, so far as I know, to preserve the posterior vaginal mucous membrane as he called it. I was the student of Sims and Emmet, and delighted to try to imitate the dexterity with which they used the scissors. I have seen continuous backward and forward dissection with a pair of scissors as a girl would pare an apple without the infraction of the entire process. But I found that Dr. Jenks was not removing the mucous membrane but dissecting the posterior vaginal wall. That is very thin in most instances. Near the original lesion of the parts it breaks easily. That is why I like the knife. With scissors we are apt to cut buttonholes. It is important that one make a dissection of the posterior wall of the vagina and leave it intact. It is also important that one make use of modern aseptic methods. There must be a clean vagina, a clean uterus. In most instances one curettes, sews up the laceration of the cervix and then applies the iodoform dressing in the vagina. What I like best is to use it on a wool tampon. After this is completed it is an easy matter to seal the wound with collodion, and it remains for two or three days. The vagina is literally packed with iodoform wool and that is left alone for three or four days. That is the end generally of all the treatment. The rectum is almost always packed in the same way.

No one has referred to operation for complete laceration of the anterior or posterior vaginal wall. In the old days we were all greatly troubled by vesico-vaginal fistulas. My old master, Sims, taught me the use of silver wire, and we all had great agony over it. When I operated within the abdominal cavity for bladder injury I found that I obtained recovery without difficulty. Then it occurred to me that the

reason we failed in vesico-vaginal fistula was that we had a cross-pull of the complex structures. Therefore, I separated the attachment of the vagina to the bladder, freshened the wound and then closed the bladder wall with a double continuous fine tendon suture, not unduly compressing the tissues. That, of course, is buried because the vaginal wall is closed over it, and in every single instance I have had just as easy recovery as I did when operating from within the abdominal cavity. If I could say nothing else, I should like to emphasize this point, that I believe this to be a very great advantage in my technic. It is comparatively immaterial how one applies the sutures. With coaptation, retention, and aseptic rest, good results will follow. With wounds treated in this way in my own hospital in several thousand cases there have been not 2 per cent. of failures in the last fifteen years.

PATHOLOGIC RELATIONSHIP OF ULCER AND CARCINOMA OF THE ALIMENTARY CANAL *

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INTRODUCTORY

Any line of investigation which promises assistance in combating the spread of cancer is worth while. For, discounting to the utmost government census figures everywhere, there yet remains the facts, first, that cancer is increasing materially in relation to the total number of deaths from all causes, and, second, that it is increasing materially in relation to the total number of living. Speaking broadly, it is probably increasing more rapidly than any other of our diseases. And this increase is greatest in the most prosperous nations and in the most prosperous classes within such nations. Further, it attacks individuals at their highest productive period. It attacks particularly the primary organs of perpetuation of the individual, i. e., the reproductive apparatus. In the male approximately two-thirds and in the female one-fourth of all cancers develop in the alimentary canal, while one-half of all cancers of the female are in the reproductive organs.

It seems to us that in our consuming interest in the initial excitant or ultimate cause of cancer, there is a possibility of our losing sight of the importance of the study of the tissue conditions of the affected individual. When the relationship of bacteria to infectious disease was first brought to the attention of the scientific world for a long time the specific germ was the chief object of study. Experience soon taught us, however, that in combating infectious diseases it is even more important that we familiarize ourselves with those conditions of the body by which nature combats disease. We are apt to forget that if we knew to-day the primary irritant in carcinoma as well as we know the leprosy bacillus we might still be almost as helpless as we now are in controlling the disease. We would still be under the necessity of investigating most carefully the anatomic and physiologic condition of the tissues which permit the primary excitant, whatever its nature, to become effective.

CLINICAL EVIDENCE

From the purely clinical standpoint, probably the most salient points which present themselves in relation to tissue susceptibility to carcinoma are the following:

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Carcinomata of the reproductive organs in the female—one-half of all cancers in this sex—occur principally at the age when the reproductive organs have begun their regressive changes.
2. Carcinomata of the alimentary canal—two-thirds of all cancers in the male—follow in the great majority of cases chronic non-cancerous irritation.

ANATOMIC EVIDENCE

When once removed from the body, tumors of the alimentary canal are of relatively easy study, because of the comparatively simple anatomic relationships; the thin walls with well-defined laminae and simple glands. The lips, mouth and anus are, of course, exceptions to this. When we examine carcinomata of the alimentary canal we find them in a great majority of cases developing on epithelial tissue which has been displaced either by ulcerative changes or by diverticula. An ulcer of the mucous membrane of the alimentary canal shows within its base usually only granulation tissue, all of the tubular glands having been destroyed. At the margin of the ulcer is an overhanging border consisting of tubular epithelium which have been cut off from their connection with the outer world by bands of scar tissue.

The center of the ulcer, filled with granulation tissue, is almost always on a level with that of the normal base of the mucosa, within which is the ring containing segregated epithelium. The tendency of such islets of segregated epithelium is toward destruction by the cutting off of their blood-supply by scar tissue. In a careful study of these cell inclusions, however, we frequently find that many of the islets instead of degenerating show more or less proliferation of their cells. This is evidenced by their apparently increased number in a cross-section, by their mitotic figures and their dividing nuclei. Such inclusions are of frequent occurrence around the borders of all ulcers of the stomach, duodenum, gall-bladder, appendix and large intestine. It is probable that the proliferation of the epithelium within such inclusions is frequently stopped by the cutting off of the blood-supply, and that degeneration results. When, however, we study many lesions of this type, particularly within the stomach, we find that certain groups of epithelium show not only proliferation of their cell contents, but that the proliferating cells are infiltrating the surrounding tissues; that this is a true passage of the epithelium into the previously formed scar tissue. That the picture is not due to the presence of remains of included epithelium which has been only partially cut off from its normal site there can be no doubt in the mind of one who studies the sections with proper care. The epithelial cells which are insinuating themselves between the bands of fibrous tissue are not old degenerating cells, but are cells which are proliferating, as is shown by their staining reactions and their dividing chromatin. It is noteworthy that this proliferation is usually most marked in the portion of the epithelium-bearing ring which is furthest removed from the center of the ulcer with its scant nutrition. More than 70 per cent of all of our cancers of the stomach give satisfactory gross and microscopic evidence of previous ulceration and isolation of epithelium, while the evidence is equally clear in our cancers of the gall bladder. We have seen at no point within the alimentary canal any evidence that surface irritation, however prolonged, has anything to do with

providing conditions suitable for the development of carcinoma. It seems to be a *sine qua non* that the portions of epithelium shall be displaced from their normal relationship, and this does not occur where superficial irritation alone is concerned, but only in ulcers and diverticula.

The relationship of small diverticula of the alimentary canal to carcinoma has not been fully appreciated, partly because the presence of the diverticula themselves have been but recently called to our attention. When Drs. Mayo, Giffin and Wilson placed on record our five cases of diverticulitis of the sigmoid three years ago, there were on record only eighteen previous cases. One of these presented a carcinoma of a diverticulum. The number of cases of diverticulitis has increased during the subsequent three years until there are now on record nearly one hundred cases. We have added five new ones to our list. In these five two are cases in which the operation was made primarily for well advanced carcinoma and diverticula were found in the base of the carcinoma. The epithelium within small diverticula is frequently quite as completely occluded from connection with the interior of the viscus as is that lying at the base of an ulcer of the stomach. Here, as in the isolated islets of epithelium within the stomach, the tendency of the segregated cells is to degeneration from reduced nutrition. They do, however, occasionally proliferate greatly and, as we have shown in three of our nine cases, they may also infiltrate and thus form carcinoma. When one goes over a number of cases of carcinoma of the sigmoid one is struck with the patch-like or ring-like character of all of the lesions, except those of the most advanced type. This is exactly the sort of tumor which one would expect to find developing on isolated epithelium within diverticula, and the two tumors whose origin, as we have demonstrated, has been on diverticula, are of exactly this type. In order to show the presence of diverticula in carcinomata of the sigmoid which have advanced to any extent, it is necessary to use the utmost care in examining the specimen while it is still fresh. Sometimes with fresh specimens this can be done by very gently probing from the inner side of the tumor, or better still, by carefully slicing off the tumor from the serous surface and parallel thereto, and examining underneath each slice as it is removed. We are satisfied from our experience that many cases of carcinoma of the sigmoid and rectum have had their origin on diverticula which have been overlooked at operation, even when they were still undestroyed by the tumor.

In the last 5,000 appendices which have been removed at our clinic we have discovered twenty-two primary carcinomas. In reviewing these recently, Drs. MacCarty and McGrath have noted that all of these tumors have occurred in the tips of appendices which had been previously obliterated. This obliteration in all cases extended well proximal to the tumor, and showed the formation of scar tissue at some point proximal to the tip in greater quantities than in the tip itself. The glandular epithelium of the tip of the organ has been separated from the lumen of the caecum. Such epithelium is frequently found to show hyperplasia or adenomatous proliferation. In the twenty-two cases which we have found, however, there is much more than this, viz., an infiltration of the deeper layers of the appendix, resulting in unmistakable primary carcinoma.

In the tough fibrous stroma of the border of the lips it is difficult to make out microscopically any evidence of flat-cell inclusions. The lips of practically all adults

have been so frequently subjected to traumatic scars, ulcers, etc., as the result of nutritional disturbances that it would seem probable that such inclusions of the epithelium are frequently present. Carcinomas of the lip, however, usually come to the clinic so late that all microscopic evidence of their previous benign ulceration has disappeared, though the clinical histories recite such evidence in an unmistakable manner.

Within the mouth the relationship of ulcerating leukoplakia to subsequent carcinoma is established on a very firm clinical basis, though here, as in carcinoma of the lip, the patients most frequently come to operation at a period when all microscopic evidence has been swallowed up in the advance of the secondary disease.

To summarize, then, the results of our studies, we may say that in the alimentary canal, whatever may be the essential irritant—micro-organisms, ferment or what not—the fact remains that in a very high percentage of the cases there is microscopic evidence backing up clinical evidence that the carcinomata have developed on epithelial cells which have been previously isolated from their normal surroundings, either by the formation of diverticula or by being cut off by scar tissue in ulcer bases. This statement has in it neither support nor contradiction for any hypothesis as to the character of the essential irritant in carcinoma. Just as we must have tissue cut off from sufficient blood-borne oxygen in a punctured wound in order to permit development of the tetanus bacillus, so it seems that in the alimentary canal we must have tissue which is cut off from its relationship with the outside world in order to have the development within it of whatever may be the essential irritant of carcinoma. Whether this isolation of epithelium is a primary necessity for the formation of carcinomata throughout the body is another question. Certain it is that a similar condition exists in the female breast which is undergoing regression. Certain it is that similar conditions exist in the uterus, with its partially shed epithelium, with its frequent erosions, and with its regressing mucosa. Certain it is that a similar condition exists in the prostate as the result of inflammatory changes segregating islands of epithelium. Within the kidney true carcinomas are frequently associated with the ulcerated process secondary to nephrolithiasis, while the so-called "hypernephromata," on the other hand, are apparently the result of the proliferation of tissue which has failed to become connected embryologically with the portion of the tubular epithelium which is in direct relation with the renal pelvis. Indeed, as we look over the whole field of carcinomata we must agree with Adami that these tumors are the result of the development on either postnatally or prenatally displaced cells which exhibit a tendency to revert to the embryonic type.

The clinical bearing of all of this is in teaching the importance of the recognition and cure of those disease processes which, however benign in themselves, tend to isolate epithelium. There can be no question but that chronic ulcers of the mouth should be promptly cared for. Ulcers of the stomach should receive the most minute attention. The obliterating appendix, however innocent its look, should invariably be removed when found. Diverticula of any portion of the large intestine should be treated by complete removal rather than by a drainage of the abscesses which may be formed about their extremities. The greatest difficulty of course is in the early diagnosis, but that is without the province of this paper.

PATHOLOGIC MATERIAL STUDIED

167 cancers of lip.
40 cancers of mouth and tongue.
2 cancers of esophagus.
189 cancers of stomach.
15 cancers of gall-bladder.
22 cancers of appendix.
20 cancers of cecum.
42 cancers of remainder of colon.
67 cancers of rectum.

570

SUMMARY

Of the cases of cancer of lip 30 per cent. gave evidence of previous isolation of epithelium.

Of the cases of cancer of stomach 67 per cent. gave such evidence.

Of the cases of cancer of gall-bladder 33 per cent. gave such evidence.

Of the cases of cancer of appendix 100 per cent. gave such evidence.

Of the cases of cancer of cecum 10 per cent. gave such evidence.

Of the cases of cancer of colon 40 per cent. gave such evidence.

Of the cases of cancer of rectum 3 per cent. gave such evidence.

CONCLUSIONS

1. The relationship to cancer of simple chronic irritation of the unbroken free surface of the mucosa of the alimentary canal, as indicated by clinical data, is not readily demonstrable pathologically.

2. Scar tissue at the bases of ulcers, obliterations of the lumina of appendices, and diverticula segregate portions of mucous epithelium from the neighboring epithelium and from the lumen of the alimentary canal.

3. These portions of segregated mucous epithelium tend (a) to degenerate from pressure and diminished blood-supply, or (b) to proliferate and infiltrate the surrounding tissues, thus forming cancer.

4. These islands of segregated epithelium probably should be regarded as points of least resistance only, and requiring the presence of other factors for the production of carcinomata.

ABSTRACT OF DISCUSSION

DR. H. E. ROBERTSON, Minneapolis: We are all helpless in the presence of cancer. Sometimes we believe that malignant growths are preceded by absolutely normal structures; this morning we have had another view presented. Dr. Wilson's contribution is of great value in showing specimens which demonstrate at least one phase of the problem. The activities of epithelial cells may be grouped under two classes: first, that of function, such as secretion or absorption, and second, that of manipulation or proliferation. When for some reason or other the functional activity is checked, all the inherent capacity of the cell may be directed toward wild, uncontrolled proliferation. Such a process might be supposed to be working in ulcers and inflammatory conditions which in all probability precede many carcinomatous tumors of the gastro-intestinal tract. The functional activity is inhibited because of inflammation, and some of the cells continue to multiply unchecked by any normal balance. I do not believe that Dr. Wilson would, for a moment, claim that all cancers arise from ulcers or preceding inflammatory lesions nor would he give the impression that all ulcers of the digestive tract gave rise to carcinoma. His paper emphasizes what we have been taught for many years, namely, that some ulcers of the gastro-intestinal tract may show cancer arising on the old margins.

DR. J. N. HALL, Denver: I wish to speak about the diagnosis of certain conditions requiring gastro-enterostomy for

pyloric obstruction, and I base my remarks on a series of 71 cases in which ulcer has been found blocking the pylorus. In these cases, the patients were operated on by Drs. Freeman, Perkins, Craig, Lyman, Fleming and other Colorado surgeons. During the same time a diagnosis of peptic ulcer was made in 81 other cases, and a very probable diagnosis in 23 cases, 175 cases in all, indicating that 40 per cent. of my cases of ulcer seemed to me and to surgeons doing much of this work, to need gastro-enterostomy. I exclude here all cases of ulcer operated on for perforation or in which resection was done because of the probability of cancer, and all gastro-enterostomies done for cancer, congenital pyloric stenosis, etc. So far as I know, there is no exact parallel for the state of affairs which exists as to this diagnosis. Many physicians recognize the gastric ulcer which blocks the pylorus, whether it be by producing spasm, by its thickening effect on the mucosa, or by the production of scar tissue. But for every clinician who frequently sees these cases there are ten who practically never call on the surgeon for help in treatment. These men either do not recognize the condition or do not recognize the fact that surgical intervention is demanded. Yet many surgeons diagnose these cases and operate without either the professional assistance or the normal support of the internist. It is a strange fact that the surgeon in many of these medical cases makes a better diagnosis than the physician. A surgeon of one of the oldest and most famous hospitals in America told me a few weeks ago, when I inquired as to the treatment of pyloric obstruction, that he was ashamed to tell me how limited his experience was, since the medical men of that institution practically never referred such cases. Yet in that city another surgeon at another hospital does much of this work. There is much ground for criticism of the profession in that so much stomach work is done by so many men, but a small proportion of whom recognize the frequency of this condition, its ease of diagnosis, in most cases, the almost certainty of relief by surgical help, and above all the overwhelming evidence that the end of these patients is slow starvation or eventually cancer. From Rochester we learn that 71 per cent. of resections for cancer showed origin in an ulcer, and 68 per cent. of the resections for ulcer showed cancerous changes. Yet under the diagnosis of dilated stomach, atonic dyspepsia, gastralgia, gastrodynia, nervous prostration, etc., these patients go on toward starvation or cancer, or both. In 11 of my cases the ulcer had evidently existed for from 18 to 30 years.

While the medical men discuss the fine points of differential diagnosis, some good surgeon, or a medical man who stands daily by the operating table and sees what the living pathology of the abdomen reveals in the cases he refers to the surgeon, often intervenes and by timely operation restores the patient to health.

We found associations for the study of cancer, but allow patients with ulcer of the pylorus, the very mother of cancer, go on under treatment by alkalis, bismuth and pepsin, the latest diet, etc. knowing all the time that cancer of this region kills more people than any other form, that it is curable by operation under favorable conditions and by operation alone. I go so far as to say that I am convinced that pyloric ulcer is so likely to lead to cicatricial stenosis, if it ever does heal, or to cancer if it does not, that I personally would not submit to any but surgical treatment for such a condition, nor do I recommend prolonged medical treatment to my patients. And yet such is the conservatism in certain quarters that if a patient with dilated stomach escapes from the internist and is cured by the surgeon, the internist will almost say, as did the arrogant Viennese professor of 50 years ago when one of his patients to whom he had given a fatal prognosis recovered under a new line of treatment at the hands of one not a university professor: "You must have been treated wrongly."

DR. FRANK WILBUR FOXWORTHY, Indianapolis: I am an internist and I want to know the relationship between ulcer and cancer in relation to time; how much time elapses from the ulcer stage? I have under my care an old woman with ulcer near the pylorus of five years standing. She was on an albuminous diet for 6 weeks and then left the

hospital free from symptoms for 13 months and she now weighs 168 pounds. Am I to believe that she is in danger of developing cancer or to suffer from the thoughts of expecting it the rest of her life?

DR. D. C. WALT, Little Rock, Ark.: I should like to emphasize a point which I think might be of interest to physicians as well as to surgeons and showing that we should know our limits. I have had an epithelioma, and I feel that I have been benefited both by the general management of my case as well as by the use of the x-ray which was applied by a Chicago physician. I feel that I am fresher to-day than I was ten years ago, and I do not attribute it all to the x-ray. Every cell organism, every animal organism is dependent on a general law, for its building process; it is a matter of waste and repair, of supply and demand. When we wait until the cell is dead, whether it is from abscess of the liver or in the tubule of the kidney, or carcinoma, the cell is dead and dead forever. We as animals, have attempted to interfere with Nature's method of living. Think of the results produced by our notions which interfere with Nature's laws of waste and repair. When the child is born, the mother places a napkin on it, making a barrier to elimination. When the child becomes older he is harnessed more securely and by the time he is matured he thinks he is living within Nature's law. One man develops arteriosclerosis, another carcinoma, another tuberculosis, all coming under the disturbances of waste and repair. We must recognize sympathetic nerves and their power to control the physical conditions, when properly influenced by the electromagnetic power.

DR. CHARLES G. STOCKTON, Buffalo, N. Y.: I feel that I ought not to allow the remarks made by Dr. Hall to go without some reply. It seems to me that his attitude toward the physician and the internist in the matter of treatment of acute ulcer as well as of chronic ulcer is wrong. I have no doubt at all that we do sometimes find cancer growing on the seat of a chronic ulcer; this certainly does occur, but not so often as one would infer from Dr. Hall's remarks. I have studied peptic ulcer carefully for years and I have had recurring cases under observation for many years and they did not develop into cancer. Furthermore, it is unnecessary in the majority of these cases of ulcer of the pylorus to resort to surgical treatment except in cases having definite and positive indications. It is unfortunate that so much importance should be attached to the scar tissue; it is unfortunate that anyone should take the position that when there is a scar as the result of a gastric ulcer, the case should go to the surgeon, because it often results in the subsequent ill health of the patient. If the cases were selected by discriminating men, if only skilful surgeons operated in such cases, we then might go further and advise operation oftener. But I have seen so many evil results from the employment of surgical methods on this part of the economy that the statements made by Dr. Hall seems to me misleading.

DR. RICHARD WEIL, New York: It seems to me somewhat questionable to interpret every instance of epithelial segregation or inversion as evidence of a tendency to carcinomatous degeneration. The presence of granulation tissue seems, as a rule, to carry with it a stimulus to this very sort of atypical epithelial proliferation. Consequently it is not a rare concomitant of chronic inflammatory processes in various parts of the body. Fisher and others have been able to produce similar results by means of chemical irritants, such as scarlet red, but they have not nevertheless produced true cancers. Occasionally, of course, cancer may originate in this fashion, but to assert on the basis of these microscopic changes that the majority of ulcers show a tendency to carcinomatous degeneration is an altogether different matter.

DR. JOHN A. LICHTY, Pittsburg, Pa.: The pathology which Dr. Wilson has shown us to-day is convincing, and I believe that he has established his point. I am led to recall, however, the appearance of uterine scrapings which have been looked on as suspicious of a beginning carcinoma. In some of those cases I have sent sections to the pathologist—in one case in particular to Dr. Welch, of Johns Hopkins—

which, to me, looked suspicious; yet Dr. Welch told me it was not malignant, and explained the condition very much as Dr. Weil has attempted to explain some of the lesions which Dr. Wilson has demonstrated. The subsequent history of these cases confirmed Welch's opinion. I am afraid Dr. Hall has drawn conclusions from Dr. Wilson's paper which are not relevant to the subject. I do not believe that in all cases of gastric ulcer, and those suspicious of gastric ulcer, the abdomen should be opened and the ulcer incised. This would lead to a great amount of unnecessary surgery and would expose patients to a great risk.

It will be recalled that in only 20 of the 5,000 cases of appendicitis was malignancy found. Now, we know, of course, that malignancy in the stomach is more frequent than in the appendix. I can agree with Dr. Wilson's conclusions as he has stated them, but I would not be willing to attach the conclusions which Dr. Hall has presented to us this morning.

DR. A. JACOBI, New York: All of us I believe have seen cases of gastric ulcer and also cases of gastric carcinoma. The diagnosis of ulcer of the stomach is not always easy; it is made by different persons differently, and their statistics differ. The surgeon with statistics taken from nothing but a surgical practice, or even a surgical hospital practice, will state that carcinoma of the stomach is very frequently encountered, that it is frequently complicated with gastric ulcer, and that there is a frequent connection between the two. He cannot tell you the reality about these statistics, when he forgets or overlooks the fact that they are the bad cases that have disappeared from the hands of the general practitioner to appear in the hospital wards, and that he sees these bad cases only, and not the average ones. The surgeon will report what he has seen, and so far he is correct. On the other hand, the man in private practice who sees the poor patient with ulcer of the stomach will say that ulcer of the stomach is a very common disease, and he will offer quite different and more favorable statistics; he is the one who can tell whether the case has terminated in hemorrhage or in carcinoma. The fact is that from a large number of statistics it has been found that there is about 3 per cent. of the cases of carcinoma occurring in the neighborhood of the pylorus which are on the scar resulting from an old ulcer. I see a great many of these cases of gastric ulcer and especially among the poor, the working people, male and female, small shopkeepers, etc.; these poor people work hard and may suffer weeks and even months before they consult a physician. Many will take care of themselves and they at times will recover in large numbers. We should compare the sources from which these people come to us. The general surgeon, the surgeon in private practice, the physician, the so-called internist, the physician who has a consultant practice only, or a large practice among the rich, the physician who has a large practice among the poor, all these men will give different statistics, and this is a point which we should all be made aware of. The general practitioner has the more correct statistics. I once suggested that 500 general practitioners should club together and all their cases of gastric ulcer with their outcome be collated and compared.

DR. HARVEY G. BECK, Baltimore: If we accept the fact that carcinoma of the stomach results from ulcers, then with a view of preventing the disease, we should consider the origin of the ulcer, and treat the underlying cause. We all recognize that there are different forms of ulcer of the stomach. For instance, we have the chlorotic form which occurs in girls. If the chlorosis is early diagnosed, and treated, we may prevent ulcers, and indirectly carcinoma. Another form of ulcer is the so-called catarrhal ulcer, which results from a chronic acid gastritis. Here again, if we treat the underlying condition—acid gastritis—we may prevent the ulcer, and the tendency to carcinoma. A third group may be classed as traumatic ulcer. These ulcers are due to an injury or irritation and are frequently the result of occupation. These cases certainly have a greater tendency toward the development of carcinoma, and if they do not yield readily

to medical treatment should be treated surgically in order that carcinoma may be prevented.

DR. G. C. SMITH, Boston: During the last 10 years only 2 patients with carcinoma developing on the site of an ulcer of the stomach have appeared in my office. Of the other cases I have had under observation, none has so far developed into cancer. I do not think we are justified in treating these patients along the lines suggested, because there is a possibility of cancer developing on old scar tissue, any more than is the man who treats skin disease who goes on and feels that he must treat the patient indefinitely with mercury. The idea prevails that such a patient has practically recovered from syphilis and that he must be left alone until something develops later, when a short treatment should again be given. I can easily understand the position assumed by Dr. Wilson in his paper. As Dr. Jacobi has so well expressed it, any statistics to be of value depend quite as much on our interpretation of them as upon the mere statement of the anatomic findings. One man has reported many patients with cancer of the stomach operated on, and in many of them he reports that the cancer has developed on an old scar tissue. He is justified in reporting such cases. But he has not seen cases as have Dr. Jacobi, Dr. Stockton, and others, in which the patients were not operated on. Some statistics are given which apply only to those patients who developed cancer; not all individuals, however, develop cancer on scar tissue. It must be remembered that 50 per cent. of patients with tuberculosis recover; this is the report from Prof. Kolisko of Vienna, where it is said that there are more cases of tuberculosis than in any part of the world. But Prof. Kolisko does not state that these patients do not subsequently develop tuberculosis. We cannot state positively that a person has been permanently cured of tuberculosis; we do know, however, that he may become apparently well. This is our interpretation of the facts.

DR. FRANK SMITHIES, Ann Arbor, Mich.: I wish to act as a sort of mediator between Dr. Stockton and Dr. Hall. There is a middle ground in the consideration of gastric ulcer and gastric cancer, that is, in regard to the prognosis, whether medical or surgical, as well as in the treatment. It depends to a large extent on the location of the gastric ulcer. I think that it is poor practice to hand these patients over to the surgeon for exploratory operation, or operation of any kind, without having at least made an attempt to determine the position of the ulcer and its effect on the motor power of the stomach. If an ulcer be situated near the pylorus and we have every reason to believe that it has healed, with a resulting scar which produces a certain amount of obstruction to the free emptying of the stomach, I think it is an extremely unwise practice to treat such a patient for a gastric ulcer indefinitely; he is bound to become a chronic dyspeptic when by an operation in the hands of a competent surgeon he can be made a useful citizen and not be left a chronic invalid. Ulcers seem to be very favorably situated for the development of carcinoma when placed where they are constantly subjected to irritation. On the other hand, it is a fault of the internist to recommend operation in all cases of simple ulcer situated in any part of the stomach which has no influence on the stomach so far as its motive power is concerned. Of course in all cases one must make an exact diagnosis. I wish to call attention to the constant and repeated examination of the stools for occult blood, not making a haphazard examination for this occult blood, but making a careful and painstaking examination of the stools that have been properly prepared for such an examination, that is, after an absolutely meat-free diet for at least three days. Another point is to examine the blood serum carefully with the idea of discovering the hemolytic reaction. This is a point which I will not debate at present. However, in carcinoma we may expect positive reaction; whereas in ulcer we do not. Again, one might speak of a very careful examination of the interior of the stomach by means of the gastroscope, but always in the hands of an expert.

DR. THEODORE POTTER, Indianapolis: It seems to me that in the discussion so far we are hardly fair to Dr. Wilson. We seem to have engaged in a general quarrel as to the diagno-

sis and treatment of gastric ulcer, with which he really had nothing to do. He comes to us presenting a careful pathologic study which he hopes may throw some light on the question of the factors which enter into the development of carcinoma. He has shown us that in a considerable proportion of the cases in which the disease has developed, and which have followed ulcer of the stomach, certain things take place and which are very significant. We must recognize them as being significant too. Dr. Wilson has presented studies which certainly will throw some light on this problem as to what is the cause of gastric cancer. With regard to the diagnosis and treatment of ulcer of the stomach, and the question as to what we are going to do about it, this certainly is not Dr. Wilson's affair; that is our quarrel. But please let us be just to Dr. Wilson and show appreciation for the work that he has done and is doing for us.

Dr. LOUIS B. WILSON, Rochester, Minn.: No doubt there are cases of cancer of the alimentary canal that have occurred without any previous epithelial segregation. We have one such, a case of carcinoma of the stomach. We have also 5 cases of carcinoma or ulcer of the stomach in which there is a proliferation, or beginning inversion of the epithelium, but I am not prepared to say that they are cases of carcinoma. Every case that I have shown to-day and 183 out of our 189 showed carcinoma in the glands or walls of the stomach. From a pathologic standpoint we are changing our methods of diagnosis. We used to wait until a "lump" was discovered before we diagnosed the case as one of carcinoma of the stomach. This we no longer do. We should not criticize Dr. Hall too severely for his statement that 68 per cent. of the cases resected for ulcer showed cancerous changes. Few known ulcers are excised and there are many in which the surgeon is doubtful as to the diagnosis. The relationship between carcinoma and ulcer so far as we can show is that in many chronic ulcers there is a segregation of epithelium on which carcinoma may develop. Not every person who is exposed to typhoid develops that disease; nor does every person who has been exposed to diphtheria develop diphtheria. The same statement may apply to epithelial segregation. But when we do encounter carcinoma, in the majority of cases there will be found to have been previous epithelial segregation. As to what shall be done with those ulcers, that is for the surgeon, and not for the pathologist, to decide.

AN IDEAL OPERATION FOR TOTAL PROLAPSE OF UTERUS *

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There persists, especially after several or instrumental labors, an elongation of the round ligaments and of the six consecutive-tissue ligaments associated with the uterus, and more especially the ligamenta cardinalia. There is deepening and sinking of the peritoneal pelvic recesses anterior and, especially, posterior to the uterus. Since the normal anteverted or anteflexed position of the uterine fundus is maintained only if the cervix is high up and far back, such descent of the cervix and fornices permits the fundus to drop back into retroversion, unless there be present unusually short and muscular round ligaments.

Slight ptosis of the uterus may occur with the fundus in anteflexion or anteversion, but marked ptosis of the uterus implies an associated retrodeviation. A retroversion or slight retroflexion permits abdominal pressure, among other accessory factors, to cause a ptosis

of severe degree. Ptosis does not occur if there are no lengthened ligaments; if the broad ligaments are elastic or sclerosed; if the uterosacral ligaments are short; if there is no tugging by a loosened vagina; if there is no atrophy of the perivaginal tissues; if there is no injury to the levator ani muscles, etc.

If a severe degree of ptosis carries the uterus down no further than to the vulva, such a hysteroptosis may be defined by the term "descensus uteri." If the uterus descends beyond the vulva, the condition is called a prolapse. With marked ptosis of the uterus there is descensus vaginae. The anterior and posterior walls of the upper vagina descend in association with any marked descent of the uterus. The nearer the portio uteri approaches the vulva, the more is the vaginal canal shortened until, in the more extreme cases, it too finally lies outside the vulva.

Injury to the fibers of the levator ani muscles, even when the perineum is not torn; results in a very flabby vulvar outlet, and when the perineum is torn, in a hernia of the rectum (rectocele). Many cases do not result in more than uterine ptosis, or retroversion or retroflexion, even when they develop cystocele, or both. Loss of the support which the levator ani furnishes the vagina may be of importance. In many cases the uterus is elongated, much enlarged, the cervix is thickened and hypertrophic and the vaginal mucosa very thick. There is subinvolution and, at times, atrophy of the elastic perituterine and perivaginal tissues. There is not infrequently associated with this condition, even in cases in which labors have not been numerous or instrumental, a state of general elasticity associated with flabby subinvolved abdominal walls and with varying degrees of gastropptosis and enteropptosis. What effect may persistence of retroversion and descent associated with intra-abdominal pressure and accessory pressures have in such cases? It leads to further uterine descent, and then, if perivaginal atrophy, large vagina and thickened mucosa are present, we observe further vaginal descent; (1) vagina pushed down by uterus; (2) vagina pulling down uterus; or (3) vaginal descent occurring simultaneously with uterine descent, but primarily independent of it.

The pathologic factors may be grouped as follows:

1. Tendency to inelasticity.
2. Labor injuries, especially if repeated.
3. Subinvolution; ligaments, uterus, vagina, etc.
4. Primary ptosis leading to retroversion. Since retroversion is present, attention has been paid to the displacement, and while this is an important pathologic factor, the elements of subinvolution, injury to the various muscles, atrophy and predisposition are overlooked.
5. Posterior enterocele and large descended fornix.
6. Large vagina.
7. Vagina loosened, giving no support.
8. Loosened vagina, actively tugging on the uterus.
9. Bladder torn from its fastenings.
10. Splanchnoptosis and intra-abdominal pressure.
11. Vocation.
12. Age. Most of the extreme cases occur after the menopause age, when there is great atrophy of the elastic fibers.

In the most extreme cases all union of the vaginal canal with surrounding connective and elastic tissues has been dissolved; all relations of fornices to normally situated peritoneal or uterosacral structures has been altered; all attachment of the uterus to fixed points of the pelvic wall have ended in tremendous elongation or atrophy.

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

Surgically, therefore, we have to take into consideration the following points:

1. Bladder and anterior vaginal wall.
 2. Retrodeviation.
 3. Elongated uterus, hypertrophied cervix.
 4. Roof of vagina, which should be restored to its former elevation.
 5. Posterior enterocele.
 6. Capacious vagina.
 7. Descended vagina.
 8. Rectocele and perineum.
- } Levator ani.

The first step in the operation is based on the vaginofixation operation of Dührssen.

The complete separation of the bladder¹ from its attachment to the cervix to the anterior wall of the uterus, to the lateral margins of the lower part of the uterus and to the anterior fornix and anterior vaginal wall, permits this organ to shrink up to a very small size and permits of its dislocation into any desired relation to the uterus. It is, therefore, obvious that, if the uterus is now attached by its anterior surface to the vaginal flaps, so that the fundus lies up behind the symphysis, the bladder must of necessity then rest on the fundus and posterior wall of the uterus and can never again come into contact with any area of the anterior vaginal wall. It is desirable, before attaching the uterus, to resect such an area of the anterior vaginal flaps as will make a taut anterior vaginal wall, a wall of such nature that it neither permits the fundus to sag down into the vagina nor forces it too far back from intimate relation with the symphysis. In this new position of the uterus, the bladder assumes a new and permanent relation to the posterior uterine wall. It is not necessary, nor do I deem it advisable except in rare instances, to sew the peritoneum on the posterior wall of the bladder to the peritoneal covering of the posterior wall of the uterus at the level of the internal os.

Resection of the flaps and fixation of the uterus to the anterior vaginal wall may be carried out at this stage but fixation of the uterus to the resected flaps may be better allowed to wait until the next two steps of the operation have been completed, namely, the amputation of the cervix and the correction of the posterior enterocele. When the uterus is fixed to the anterior vaginal wall, I pass four sutures, two of heavy braided white silk and two of No. 3 chromic, through the edges of the anterior flaps and through the upper part of the uterine fundus. The fixation is best allowed to wait, but the four fixation sutures are carefully passed through the fundus, their ends are grasped by an artery forceps, and are subsequently threaded and passed through the vaginal flaps after the next two steps have been carried out.

A high amputation of the enormously hypertrophied cervix is now in order. The fundus is replaced within the pelvic cavity, with or without fixation to the flaps, and the cervix is pulled down beyond the vulva and lifted up toward the urethra. A transverse incision is made through the vaginal mucosa at as high a point as possible without entering the cul-de-sac of Douglas; the lower edge of the incision is grasped with a mouse-toothed forceps; and the index-finger covered with gauze, sometimes aided by short snips of blunt-pointed scissors, separates the vaginal wall from the posterior wall of the cervix up to the peritoneal fold of Douglas, and continues to dissect this peritoneal fold upward for a considerable distance from the posterior wall of the

uterus. We still have the lateral wall of the cervix covered by a bridge of vaginal mucosa; this bridge is incised with scissors down to the actual structure of the cervix, first on one side and then on the other, and, with its submucous connective tissue is peeled away from the cervix by upward rubbings of the gauze-covered thumb. It peels away from the cervix smoothly and easily up to the uterine arteries. In this maneuver, as well as in the dissection of the posterior vaginal wall, there is considerable oozing, which is of minor importance. Side retractors are introduced there, if necessary, the bladder is held out of the way by an anterior retractor and the cervix is amputated at the level of the internal os by the aid of scissors. If this amputation is carried on from one side to the other, or from the anterior wall of the cervix down through the posterior, cutting of the uterine arteries should be avoided. As soon as the canal of the cervix is invaded the thick anterior lip should be grasped with single-bladed volsellum.

After amputation of the cervix, the uniting of the vaginal mucosa around this new external os is begun, first at the posterior wall. No. 3 chromic catgut sutures being used and the vaginal mucosa being caught at least three-quarters of an inch from the edge in order to cover thoroughly the denuded lower end of the uterus. After the first suture is applied and tied, the others are applied close to this one, first on one side and then on the other, care being taken to take up the vaginal mucosa snugly, so as to allow of no reefs or pleats. In this way the surplus of the posterior fornix and of the two lateral fornices is done away with. The sutures are then applied to the lateral wall and then to the antero-lateral walls. A large surplus of vaginal flaps is noted, which consists of the originally dissected anterior vaginal flaps plus the surplus gained from the posterior and lateral fornices. The flaps are drawn, first one and then the other, over to the opposite side, and a very large triangular area is cut away. Now the uterus may be attached to the remaining vaginal flaps, each of the four fixation sutures which have been applied in the uterine fundus being threaded separately and carried through the vaginal flaps near their upper end. These may now be tied, bringing the fundus into intimate relation with the newly formed anterior vaginal wall. The flaps below the fixation sutures are then united by interrupted sutures of No. 3 chromic, which pass through the anterior uterine wall at the same time; or else the tying of these sutures may be left until the complete dissection of the rectum from the posterior vaginal wall has been completed, for, if in some instances these fixation sutures are first tied, it is a more difficult procedure to carry out a thorough dissection and resection of the posterior vaginal wall.

The next step of the operation consists in a high colpoperineorrhaphy which includes an absolute separation of the rectum from the posterior vaginal wall to within $\frac{1}{2}$ to $\frac{3}{4}$ of an inch of the newly formed external os.

Two single-bladed volsella are attached to the lateral margins of the vulva at a point which is to constitute the lower end of the posterior vaginal wall and the highest point of the new perineum. These are drawn apart (before this an intra-uterine strip of gauze is introduced); and a pair of curved scissors cuts a wide tape-like strip from one volsellum to the other along the lower edge of the exposed vaginoperineal junction. Three or more heavy artery forceps are applied to the

1. The method employed in the separation of the bladder has been described in the *International Journal of Surgery*, May, 1909.

skin edge after this strip has been cut away and are allowed to hang down so that, by their weight, a denuded area half an inch in width is apparent. The upper edge of this denuded area is picked up with a mouse-toothed forceps, and a sharp knife begins the dissection of this thick posterior vaginal wall from the underlying, readily bleeding connective tissues. After this dissection has been well begun from one volsellum to the other, three or more artery forceps are applied to this upper flap, the forceps are grasped in the left hand and the fingers are placed behind the flap and the separation is continued with the knife from the underlying tissue, and then continued by the index-finger covered with gauze. After the preliminary dissection with the knife has been well started, the separation goes on easily, occasionally aided with the knife or with blunt-pointed scissors, the operator being extremely careful to avoid cutting into the rectocele. Oozing is fairly brisk, but no attempt to check it with artery forceps need be made. The dissection should extend very far laterally, especially so into the lateral sulci in which rest the separated levator ani muscles. After the flap has been thus separated upward for a distance of two inches, it is pulled down taut and then bisected along the median line as far as the separation has been carried. Artery forceps are then applied to the highest points of these flap edges and the separation from the rectum upward and laterally is continued. As the separation extends higher the flaps are bisected in continuity and artery forceps are applied high up in succession. In this manner, the entire posterior vaginal wall is separated to within half an inch of its upper limit and very well into the lateral sulci of the vagina. The flaps are then drawn down, first on one side, and then on the other; a large area is resected beginning at each volsellum and extending upwards to the highest point of the dissected flaps.

If the uterine fixation sutures have not yet been tied, they are tied now, and the union of the edges of what now remains of the posterior vaginal flaps is begun with heavy chromic catgut beginning at the highest point and gradually approaching the perineum. Occasionally, one of these sutures is made to catch the connective tissue over the rectocele in order to reef it upwards. As a rule, this is not advisable, as pockets may be formed, but with each successively applied suture the rectocele is pushed upward by a blunt-pointed instrument. After several such sutures have been tied, it will be noted that the vagina has been reduced to a canal of very small caliber, and this part of the vagina may now be gently packed with iodoform gauze. We now have left a large denuded area with the outline of a rather high colpoperineorrhaphy and some of the bulging rectocele at the lower area still remains to be dealt with.

Since the rectocele is a hernia through separated or torn levator ani muscles, these or the fascia which covers them must be brought together in such a fashion as to lie between the new vagina and the rectum and hold the rectocele permanently in check. Inasmuch as the healing of such a large denuded area is promoted to a great extent by the use of the smallest possible number of sutures, I use for the perineorrhaphy with the very best results a No. 4 chromic catgut suture passed in figure-of-eight fashion and constituting a single stitch. A very long, heavy, slightly curved needle is used; the left index-finger is introduced for control into the rectum so that the needle may at no point enter the lumen. The highest area of the remaining denudation is brought into view by a pair of forceps applied to the upper

angle; that is, to the last-applied chromic suture which united the newly formed posterior vaginal wall. The needle, introduced on the left side one-half an inch or more exterior to the volsellum, goes in deeply through the lateral area of the denudation under the levator ani muscle. It is then continued up along the left lateral edge of the denudation close along the vaginal mucosa and comes out above the last applied chromic suture, now held by an artery forceps. The needle is pulled through and with it the chromic catgut. It is now introduced on the other side of the median line and passed down between the exposed connective tissue and the rectal mucosa over the finger in the rectum half-way between the median line and the volsellum on the right side. As the needle passes lower down and gets within an inch of the skin, it is passed deeply through the tissue coming out half an inch from the skin margin. The needle and chromic catgut are now pulled through and are passed in the same fashion, but from below upward, midway between the median line and the volsellum on the patient's left side. It is then passed upward, the point of the needle being controlled by the finger in the rectum, and makes its exit at the upper angle of the denudation through the vaginal mucosa. It is then introduced on the other side of the median line, passes under the mucosa on the right lateral edge of the denudation until the point reaches the depth of the right lateral sulcus, and is thus passed deeply under the levator ani muscles and out external to the right volsellum half an inch or more from the skin edge. The needle and chromic catgut are then pulled through.

In order to make the union of the posterior vaginal wall more perfect, three chromic catgut sutures are passed (but not tied) through the edges of the mucous membrane, forming the lateral margins of the denuded area and out through a corresponding point on the other side. These are grasped by artery forceps each one separately. Sutures are now passed to unite the levatores ani of the two sides and form a bridge which is to restrain firmly the rectocele. One, two or three chromic sutures are passed by a well-curved needle deeply through the lateral sulcus of one side in which rests the levator ani and its covering of fascia and, then, through the other side in the same fashion. I have not found it necessary to dissect out through the fascia any muscle bundles of levator ani muscles. These one, two or three sutures are now firmly tied, and their influence in pushing up and holding back the rectocele is readily apparent. These are the only buried knots in this method of perineorrhaphy.

A pair of artery forceps is now applied to the middle point of the skin edge, the two ends of this long, single-stitch chromic suture are pulled on in seesaw fashion, gently but firmly, and that part of the single-stitch suture which has passed from one side to the other over the skin edges is seen to take its place at a point almost midway between the ends of the suture held in the hands and the artery forceps applied to what is now becoming the lowest point of the external perineal wound. When the two ends have been thus pulled on, the two lateral sides of the perineal denudation come together in absolute contact, and a triple knot is tied and cut; the three chromic sutures which were passed and held by a forceps are tied. They unite the lower end of the posterior vaginal wall.

Two or more chromic sutures are now introduced in the perineum itself to bring the skin edges nicely together, and the patient is catheterized. Strips of iodo-

form gauze are tucked into the vagina, and the sphincter ani is given a most thorough stretching. Then iodoform gauze is applied liberally over the vulva and perineum, and is renewed with sufficient frequency to keep this area dry. The perineum is douched several times a day, especially after catheterization or defecation, with a pitcherful of sterile aluminum acetate solution. Catheterization is continued for three or four days and the patient is then allowed to void, if she can. The bowels are permitted to act whenever the patient is so inclined, otherwise, medicine is administered by mouth on the third or fourth day.

The intra-uterine strip of gauze which is usually marked by having a piece of chromic catgut tied around the end is pulled out without disturbing the vaginal packing on the third or fourth day. The vaginal packing of iodoform gauze is allowed to remain from five to eight days. The operation is attended with a minimum of shock, the pulse-rate in very few instances being over 90 at the completion of the operation.

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ABSTRACT OF DISCUSSION

DR. J. H. CARSTENS, Detroit: I should like to ask Dr. Bandler how old these patients are that he operates on, generally?

DR. S. W. BANDLER, New York: From 37 to 78. The youngest is 37.

DR. J. H. CARSTENS: That is the point that I was going to bring out. This is an operation on the order of the old operation of Martin of Berlin, of Mackenrodt and of Duhrssen. I do this operation once or twice a year because the women are young. They are in the child-bearing period, and anxious perhaps to have children, and I endeavor in every way surgically to save that capacity. But when a woman is over forty, if she is past the menopause, or if she is seventy-five, why in the name of conservatism should anybody try to devise and subject a woman to an operation that takes an hour and a half to preserve a little picayune piece of uterus? When you have a good for nothing piece of uterus, have sliced off a great piece of the cervix, have taken out the tubes so that she cannot become pregnant, then you preserve this little piece. What for I don't know. In this kind of a case you can do all kinds of plastic operations, without benefit. In such a case I just cut around the uterus, take it right out, stitch the two broad ligaments together, and make a little flap. The whole thing can be done in fifteen or sixteen minutes, with good results, and the woman is not subjected to an operation which takes an hour and a half or two hours.

DR. J. RIDDLE GOFFE, New York City: I quite agree with what Dr. Carstens has said in regard to the removal of the uterus. In all these cases in women approaching the menopause, or afterward, it is my invariable rule to remove the uterus. I see no reason for keeping it. It shortens the operation very much and makes sure of good support from the broad ligaments.

The point I would criticize in Dr. Bandler's operation is that he separates from the cervix at either side the strong structure at the base of the broad ligaments, viz., the fibromuscular structures called the cardinal ligaments. Unless that support is retained, even though you do as complete an operation as has been described, sooner or later that little piece of uterus is going to come down. No matter how thoroughly the perineum is built up or how securely the fundus is stitched to the anterior vaginal wall, unless, as I say, these cardinal ligaments and the round ligaments are preserved and support from them secured, sooner or later the vagina will turn itself inside out, and while the fundus will not be seen at all, the cervix will come down and drag the bladder after it. I have seen such conditions after operation. There may be some cases, as Dr. Carstens says, of women who desire to have children, in whom it is well to pre-

serve the uterus. I have done the operation with that intent. After the uterus is removed my method is to stitch together the broad ligaments from either side across the pelvis, commencing with the round ligaments, carrying my sutures down the full width of the broad ligaments, including the cardinal ligaments. Upon this plane of tissue I spread out the bladder, stitching it firmly at three points, thus hanging it there and securing its support from above. The fascia lata and anterior vaginal wall are then trimmed off and stitched to fit snugly the base of the bladder. It is important to relieve the rectocele. A rectocele, if continued, is bound to pull the uterus down. In a rectocele we have introduced a new force which is not there naturally at all, a pulling force that drags down whatever is above and unless we repair the floor of the pelvis the prolapsed condition is reproduced. My method of doing that is to start from above where I have cut away the peritoneum posteriorly to the cervix, dissect down a broad piece of tissue the full width of the rectum, clear down to the vulva and out on either side to get hold of the levator ani muscles. Where a large rectocele is present I plicate the rectum, taking in the slack in its longitudinal axis, and then bring together the levator ani muscles from either side in front of the rectum to restore the floor of the pelvis.

DR. F. F. LAWRENCE, Columbus, Ohio: The questions occur to me: Why do we have prolapse? Why is it that in quite a goodly number of women who have had their perineums torn almost to the rectum they go on for years without even a slight descensus? It seems to me that when we start on the theory of building up from below in a case of complete prolapse or any other marked descent of the uterus we are getting the cart before the horse absolutely. In the first place, a marked retroversion is a physical impossibility, much more is a prolapse an impossibility, so long as the broad ligament is sufficiently tense to sustain the weight of the abdominal contents, not only against normal weight, but against deep inspiration or pressure about the waist from corsets or from clothing. And we may repair from below all we please but we have not relieved the ptosis within the abdomen and consequently the weight of the entire abdominal contents will be on the top of our downward repair and sooner or later with even no recurrence of the prolapse of the rectocele and the vesicocele we will have the women in constant pain because of pressure on the compressed scar tissue. I do not believe (as Dr. Carstens has just so emphatically said) that we are justified in doing any prolonged tedious plastic operation creating an enormous amount of scar tissue which never amounts to anything anyhow, leaving the real cause of the difficulty which lies above. We must restore the tension of the broad ligament to sustain the contents of the abdomen first. Then simply by the repair of the rectocele and the cystocele we shall render all the service we are able to do.

DR. J. M. BALDY, Philadelphia: This operation does not deal with the essential point of prolapsus uteri. A nice operation is done on the vagina but nothing is done after the uterus is put back into the pelvis to push it up to the normal height and to hold it there. If this is true you fail in everything, because all the pressure that tears the uterus loose will still be operative. Any operation that fails to deal with that *per se* condemns itself. The amount of denudation done is simply enormous. Passing the fingers into the rectum with or without gloves—and gloves make them dirtier than without—you add to the chance of infection.

DR. S. W. BANDLER, New York: I am not at all worried by this tirade. I have not come here and presented to you an idea. I have been working on this vaginal route for fourteen years. I tried to cure these patients originally by a simple vaginal fixation and found it was by no means enough. I added to that the high amputation of the cervix, and found that was not enough. I tried amputating the cervix and special method of getting the two large flaps before fixing the fundus in front. That was fine, but still not enough. But since I diminished the caliber of the vagina and did a high perineorrhaphy not a case has recurred. Where would we be to-day in surgery if its great men said "Don't do this or that operation because it is a long one or a bloody one?" When men like Dr. Baldy talk this way it is child's talk. These pa-

that one cannot say with certainty whether the sounds are not carried over from the right side. By auscultation one can follow the trachea to the bifurcation, and the right bronchus on down into the lung. All sounds cease in the left bronchus at the bifurcation.

March 1: Lung findings. Picture entirely changed. Breathing excursion the same on both sides. Rales the same on both sides.

Fifth Bronchoscopic Treatment.—Interval Examination.—March 1, at 6 p. m.: Time of treatment, 10 minutes. Morphin, 0.01 gm. Mucous membrane was very slightly swollen, with scattered masses of thin white mucus. Bifurcation at 29 cm. absolutely normal in appearance. One can pass the 7.5 tube easily into the left bronchus, and all seems normal even in the smaller branches. No contractions visible. Right bronchus and smaller branches seem absolutely normal in appearance. No contractions. The mucous membrane on both sides was thoroughly swabbed with 20 per cent. cocain solution, and the finer branches sprayed with same solution. X-ray picture taken after treatment shows only packets of glands along vertebrae, and a string on the left side reaching upward from the heart.

March 2: Attack. No morphin.

March 3, 11 p. m. to 2 a. m.: Severe attack. Morphin, 0.01 gm.

March 4, 2 to 8 p. m.: Severe attack.

March 5: Light attack.

March 6: Light attack.

March 7: Severe attack.

March 8: Severe attack. Patient discharged at her request.

COMMENT

In reviewing the details of this history there are certain points which seem to me of great importance. We have a case complicated by many factors—hysteria, tuberculosis and severe accessory cavity disease. The asthmatic attacks were of great severity; the patient was obliged to use morphin for years. The successful treatment of the accessory cavity trouble had no influence on the course of the disease.

The first bronchoscopy relieved the lungs of a great mass of mucus. I doubt very much, on account of the amount of secretion present, whether the cocain had any effect at all. The patient was evidently very much relieved, more so than by other form of treatment up to that time. She herself asked for another treatment.

The second bronchoscopic treatment was carried out without difficulty. No secretion, no redness, no swelling and no contractions were noted. Here the conditions were more favorable for the action of the cocain. The ordinary dose of cocain is given as 0.05 gm., which is 5 drops of a 20 per cent. solution or about as much as one applicator would carry. Sixty drops were used on the applicators and, in addition, 0.5 c.c. of a 20 per cent. solution was sprayed into the finer bronchi. Nearly twenty-two times the maximal dose was used and no effects of the drug could be noted. The pulse was not accelerated twenty beats, either by the cocain or by the procedure, which lasted nearly twenty minutes. Was the cocain absorbed as such or did it exercise some local effect on the nerve endings which would account for the subsequent great improvement? From December 4 to the latter part of January of the following year the patient was practically cured. She had no attacks, gained in weight and appetite and considered herself cured. Whatever the cause of the improvement, it seems to me that the treatments were more than justified.

The patient's indiscretion following the death of her father was too much of a strain for her poorly-balanced nervous system. All conditions were most favorable for a recurrence of the attacks, and they recurred, but, as

the subsequent bronchoscopic examinations showed, they were of an entirely different type and far less severe than formerly. Whether these spasmodic narrowings or clonic cramps of the musculature of both the large and small bronchi are typical of a certain type of asthmatic attack I do not think that we are in a position to conclude from the fragmentary observations which we now have at our disposal. In a later case, which I shall not now report, I saw nothing of them. So far, observations are too few and the pathologic picture too changing to allow us to form any definite ideas. I have reported this case in the hope that it will stimulate some one to extended experiments.

The third bronchoscopic examination was again carried out during a severe attack. Here a great surprise awaited us. Instead of finding the bifurcation at 28 cm., where it normally belongs, we were obliged to carry the tube on down to 32 cm. No explanation suggested itself. It seemed that this bifurcation was much smaller than usual; it was certainly somewhat contracted, and the mucous membrane, as far as the eye could see, was not reddened and not swollen. My first thought was that I had overlooked the condition at the first examinations, and that it was some anatomic abnormality. I also considered the possibility of having in some way shoved the lungs bodily down with the larger tube. I was entirely unable to offer any sensible explanation to the clinicians present, and I felt that I was facing some problem which I determined to clear up at the first opportunity.

The fourth examination was carried out eight days later, during a severe attack. I was prepared, after thinking over the curious conditions found at the previous examination, to pay especial attention to the region at a depth of 28 cm. As I have already said, at 29 cm. I found a white scar-like change in the mucous membrane, in the middle of which was a small opening about 3 mm. in diameter. The sound passed readily into the left bronchus and the scar-like tissue did not feel at all swollen to palpation but hard. There could be no shadow of a doubt as to the correctness of the observation. It was demonstrated to all present, and in the discussion which followed, bearing in mind the previous severe attack of diphtheria, we were inclined to regard it as a cicatricial contraction at the beginning of the left bronchus, a conclusion which entirely invalidated the observations at my first two examinations. In looking up the literature on the subject, no similar case was to be found, and nothing would satisfy me except another examination.

I was now convinced that I had found the true cause of the trouble and immediately began preparations to carry out a course of dilatations of the bronchus similar to that used by Killian in the removal of a foreign body situated under a stricture.

A careful examination of the chest, carried out a few days later during an attack of unusual severity, seemed to confirm our findings. The left lung seemed completely out of use, and one could determine exactly by auscultation the point of constriction.

Three days later an examination was again made in an interval between attacks. The findings were almost reversed. Both lungs functionated equally and no trace of a stenosis was to be found by auscultation. By this time my suspicions were aroused as to the true state of affairs, and the last bronchoscopic examination, which was made while the patient was free from an attack, showed a per-

fectly normal mucous membrane, with no signs of contractions either in the left or the right bronchus.

The conclusion was obvious; the patient was suffering from a spasmodic closure, or, better, a tonic cramp of the bronchial musculature, confined principally to the beginning of the left main bronchus, but also plainly to be seen in the deeper branches of the right bronchus.

That this cramp was not present at the first two examinations I am positive. That it was present at the second two examinations I am equally positive; and, besides, it was demonstrated to the many onlookers. And, finally, that the bronchus was again normal at the last examination was proved by the fact that the tube was passed down both sides.

In conclusion, it is interesting to note that the greatest relief occurred after the first two treatments. The relieving of the lungs of the enormous mass of mucus by the introduction of the tube seemed to be the determining factor in the first treatment. The period of forty days' relief following the second treatment might be credited to the combined effect of the dilatation, which I am convinced plays an important rôle, and to the local action of the cocain. How this local action is to be explained I am at a loss to say. I do not think that it is due to the absorption of the drug as such, for I have not yet seen any symptoms which would point in that direction. I am inclined to believe that asthma is a nervous reflex affection, and that the cocain exercises an effect analogous to the favorable action of that drug when applied locally in the nose during an attack of dysmenorrhea.

CONCLUSIONS

Combining and comparing my results with those of Notowny and Galebsky, I think that I am justified in drawing the following conclusions:

1. It is possible in a young adult to have an almost complete closure of a main bronchus, due to a tonic cramp.

2. Notowny's conclusion that the theory of bronchial spasm is false is disproved in this case.

3. The complete cures in some cases and the long period of relief in this case seems to indicate that the treatment of spasmodic asthma by the methods elaborated in this paper is worthy of more extended investigation and should be given a trial when all other methods have proven of no avail.

4. There seems to be no one bronchoscopic picture characteristic for an attack of spasmodic asthma. We may have normal mucous membrane, spasms and contractions of the large and small bronchi, and redness and swelling, alone or combined in the same case.

5. Tuberculosis, heart disease, slightly scoliotic spine, great weakness and age seem to offer no contraindication to the use of this method.

209 Post Street.

ABSTRACT OF DISCUSSION

DR. E. FLETCHER INGALS, Chicago: I have not the enthusiasm of Dr. Horn in reference to bronchoscopic treatment; I do not agree with him that there is no contraindication to the use of this method of treatment. Some men who have great skill in this line can examine patients without much difficulty and without ill effects, but it is equally true that in a large number of cases bronchoscopy is followed by serious results. Von Eicken, in an exhaustive report to the International Medical Congress in Budapest, 1909, records 308 cases of bronchoscopy for foreign bodies, collected from every available source, including the literature and personal

communications. Five of these cases he leaves out for reasons not explained; but in 303 there were 40 deaths or 13.20 per cent., the fatalities being considerably more numerous in young children. It is not possible to get accurate statistics, for most unfortunate cases are not reported, but I am under the impression that very few men should attempt this work, because of danger to the patient. There is not opportunity for many men to become expert in this operation. I note that Dr. Horn's examinations were not long continued; this should be remembered as an important factor of safety.

I agree with Dr. Horn in his conclusion as to the error of one author quoted regarding the conditions of the bronchial tubes in asthma. This case occurred in winter; the patient had come from the outside into the warm atmosphere of the hospital and we cannot be so certain as to the influence of the treatment, because, as we know, many cases of asthma are relieved by simply coming into the hospital. I do not think the treatment did any harm and I think it was justified, but I do not think that more than one man in a hundred would be justified in doing bronchoscopy for the relief of asthma. The cocain can be applied more easily and safely through a spray tube passed below the vocal cords or it may be inhaled from an atomizer, with quite as much relief. A method much employed by an irregular who gives patients much relief consists of the inhalation of a small quantity of cocain, atropin and possibly epinephrin—sometimes people are relieved thereby for months; therefore, applications of strong solutions do not seem to me to be justified except in extreme cases, like the one referred to in this paper. The findings of contraction of the bronchus in the fourth examination is interesting. In the other examinations, the large amount of morphin and scopolamin may have prevented contraction. In bronchoscopy, we see rhythmic contraction and relaxation of the bronchial tubes provided the patient has not been overpowered by the anesthetic. In a case which I was demonstrating to a class of doctors, a bronchus from 4 to 6 mm. in diameter, closed so that the opening was not visible. I have seen a bronchus close completely, when search was being made for a foreign body.

I made some experiments about a year ago in the laboratories of the University of Chicago with the view of ascertaining the effects of certain remedies in the spasmodic conditions of the bronchial tubes in asthma. I did not have time to carry these far enough to give me anything worth while, except on one point; in a dog I produced tonic contraction of the bronchus, with almost typical asthmatic breathing, for some time by the insufflation of powdered ipecacuanha. With reference to the position of the bifurcation of the trachea, there is a large chance for error. I have sometimes found it difficult to locate the bifurcation, though I do not think this likely to happen with Dr. Jackson, who is expert and can see better than I. It would not be strange with the variability of the illumination and the anatomic conditions for one to mistake the bifurcation of the main bronchus for the bifurcation of the trachea. I have not examined patients with asthma by this method; I am glad that Dr. Horn has done so and hope it will be done by others, but I hope that not all laryngologists will undertake to cure asthma in this way. It is better to wait until one has had a great deal of experience in bronchoscopy on living dogs, before trying at all. There is all the difference in the world in doing bronchoscopy on the cadaver and on a living subject.

DR. CHEVALIER JACKSON, Pittsburg, Pa.: I am in direct and absolute opposition to Dr. Ingals in only one statement; he stated that I am more expert and can see better than he can; that I deny most strenuously; it absolutely is not true.

My position is about half way between that of Dr. Ingals and Dr. Horn. I do not think every one should examine the bronchi in disease, but that the dangers are very great I do not believe. I do not think that the difficulties are very great in bronchoscopy if it is for therapeutics. Foreign body work is totally different. There it is a problem of mechanics, and good mechanics are born, not made, and lest I be thought boasting, I would state that it is a generally accepted fact that the best mechanics are men of very little brains. I think in the future many men will devote

themselves to the diagnosis and therapeusis of the air passages, using the bronchoscope simply as a speculum, and as a speculum is used in gynecology and other specialties. The field is enormous. We went down into the lower air passages first for the extraction of foreign bodies; then we began to discover pathologic conditions; and we have discovered that there is an immense amount of pathology of the air passages visible bronchoscopically. The time has arrived when diagnosis of thoracic diseases are being made with the bronchoscope. That is the first step beyond the foreign body stage; the next is therapeusis. I regard Dr. Horn's paper as epoch marking in this respect. Now we must bear in mind that an entire year's publication of THE JOURNAL would not contain all the remedies suggested for asthma, which is one of the most complicated of conditions, and it will take a long time to perfect bronchoscopic methods of treatment. When cocaine first came into use we were enthusiastic about curing acute rhinitis and a host of other troubles with applications of cocaine and all physicians know where that drugs stands to-day. I do not think we will apply the bronchoscopic treatment of asthma to all cases, but I think that there are patients who can be cured by local treatment in this way. Asthma is a neurosis and there must be general treatment as well as local; however, this is a step in the right direction and I certainly believe with Dr. Horn that we have here a field for investigation and that patients will be cured in this manner.

I would particularly like to emphasize, however, that we began this work for the extraction of foreign bodies; that we found disease; that diagnosis was the second step, and that the third will be therapeusis.

DR. W. E. CASSELBERRY, Chicago: Even in foreign body work the bronchoscopic examination is of value from a diagnostic standpoint. It might be thought that we would have in the radiograph sufficient evidence of the presence of a foreign body, but it fails to disclose the exact conditions in which the foreign body may exist in the bronchial tract. The point I would make is that we cannot learn what may be vital conditions until we have made a bronchoscopic examination. A case in point is one in which a 1½ inch glass-headed steel pin was plainly enough lodged in the left bronchial tract as shown by the x-ray, but in which on bronchoscopic examination it was found to be immovably transfixed in the first bronchial branch with its head impacted against the upturn of this branch and its point inserted firmly into the bronchial wall. It could be grasped with the bronchoscopic forceps, all suitable kinds being tried, and the force being exerted in all directions, but without success in removing it because of the transfixion until at a second operation it was cut in two. The bronchoscopic pin-cutter which I devised for this case could be used also for needles, safety-pins, etc. To prevent the fragments from flying asunder and getting lost the instrument was so devised that it will hold fast to one of the ends of the pin after cutting. In my case the pin being cut near the point, this end was retained and withdrawn by the cutter and the other end was then picked up with forceps and withdrawn.

DR. HENRY HORN, San Francisco: I have been accused by Dr. Jackson and Dr. Ingals of over-enthusiasm and I desire to plead not guilty. I am not at all enthusiastic about this method of treatment. The paper is simply presented as a pathologic experiment. I selected this case from a number of others that I had been working on, not because of the value of the treatment, but because of this remarkable condition of tonic closure of the main bronchus. As Dr. Ingals truly said, it goes without saying that if one's technic is not good, such work should not be undertaken. Of course, I did not mean that there were no contraindications, naturally there are many, but I mean that before I tried this I would not have done it, for instance, in a case of dilated heart. I only wanted to report this experimental work in the hope that some members of the Section would carry on the idea and see what results could be obtained. Dr. Casselberry said that this patient was brought from the outside into the warm atmosphere of the hospital. As a matter of fact, she had been in the hospital for an entire year, receiving every

treatment that the German Pharmacopeia knows, and she had had morphin every night for a year. It seems to me, therefore, that the result must be credited to bronchoscopy unless it be credited to the mental effect on the patient.

I do not know much about the cocaine proposition referred to by Dr. Casselberry. In a large series of experiments on dysmenorrhea, I was able to relieve the patients by local applications in the nose. I do not know why, but the fact that the pain ceased is true. I simply offer the suggestion that there is some sort of an analogy.

This is not the only case I have worked on. When possible I examined every patient with severe chronic bronchitis who came into the clinic, and almost without exception they said that they were relieved. Why I do not know, but I am of the opinion that the passage of a large instrument into the bronchus is somewhat analogous to the passage of the cold steel sound in the urethra. Before I left San Francisco I had a case in which I did not use morphin or cocaine and the woman, who had severe asthma, had taken stramonium powders every half hour for years. After one passage of the bronchoscope and that only down to the bifurcation she came back two weeks later, without having had to take a powder. So that there must be something in the mere introduction of the bronchoscope.

As regards the position of the bifurcation, perhaps I did not make myself quite clear. I meant the bifurcation of the trachea, which one can hardly miss. One may pass this little opening of the upper bronchus very easily. If you happen to twist the bronchoscope it may be taken for a cicatricial contraction. Dr. Jackson misunderstood me: I said I mistook the constriction for a scar contraction and supposed it to be a result of diphtheria, but it was not as was shown later. Up to the present time there are no cicatricial contractions reported as due to diphtheria.

Now was I justified in making this trial? I think so. If the technic is good, I do not think that there are many contraindications to the procedure. I have had patients tell me that the passage of the bronchoscope is more comfortable than the passage of the soft rubber tube into the esophagus. If the patient doesn't object to the passage of the instrument it cannot be uncomfortable. This work is certainly going to open up a great field in the study of internal medicine as related to the respiratory tract. We are able to recognize many things that a few years ago we never thought of looking for—abscesses, tumors, strictures, etc..

AGAR-AGAR IN THE TREATMENT OF CONSTIPATION IN CHILDHOOD*

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Agar-agar is prepared from hot water extracts of various species of *Gelidium* and differs somewhat in its composition according to its origin. It is sold commercially in the form of strips about eighteen inches long, varying in thickness from that of a straw to that of the finger. It contains about 60 per cent. of carbohydrates, principally in the form of galactosan and pentosan.

Saiki¹ did a series of beaker experiments in order to determine its digestibility and obtained negative results, not only with saliva and pancreatic amylase, but also with an intestinal extract containing very active invertin. The digestibility was but little increased by preliminary treatment with dilute acid. He also found that agar-agar was very resistant to the action of the ordinary intestinal bacteria. Only one of three strains of the

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Saiki: Jour. Biol. Chem., 1906, 11, No. 3.

Bacillus coli communis caused gas production in agar-agar media, and that only to a slight degree. Utilization experiments in both animals and man showed that very little (about 10 per cent.) of the polysaccharides was utilized and that the agar-agar was passed through the intestinal canal unchanged.

Agar-agar has the property not only of absorbing water, but also of retaining it in its passage through the intestinal canal. It thus increases the bulk of the feces and prevents the formation of hard, fecal masses. This peculiarity, together with its resistance to bacterial decomposition, suggests its use in the treatment of that form of constipation which is due to complete digestion of the food and to complete absorption of the water from the intestinal tract, the stools being as the result small and very dry. It has been used with good results in the treatment of this class of cases in adults by Mendel,² Schmidt,³ Gompertz⁴ and others. The doses given have varied from $\frac{1}{2}$ to 1 ounce daily. Owing to the nature of its action, no habit is produced and it is not necessary to increase the dose. In fact, it is usually possible to diminish the dose and in some instances to entirely discontinue it. In spite of the fact that agar-agar alters the character of the feces, it does not always induce a spontaneous evacuation of the bowels. This is because it does not exert an irritant action on the intestinal wall as do the products of putrefaction usually formed in the intestine. Schmidt called attention to this fact and added a small quantity of the extract of cascara to the agar-agar in order to supply this chemical irritant. A preparation of this sort is sold under the name of "regulin." This is made with one of the tasteless forms of cascara and is both tasteless and odorless. Whether the tasteless forms of cascara are as active as the others is a moot question. However this may be, a serious objection to this preparation is that it contains two substances having different actions, one acting mechanically by softening the feces, the other as an irritant to the intestinal wall. It is impossible to increase the dose of one without increasing that of the other also. It is much more rational, therefore, if both agar-agar and cascara are indicated, to give them separately, in order to be able to vary the doses of each independently.

Agar-agar is sometimes eaten dry in the stick form, but is more often cut up into small pieces and eaten like a cereal with cream and sugar. It has almost no taste but a rather characteristic gelatinous feel in the mouth. In other instances it is mixed with cereals or cooked in with soups or broths. Schmidt cautions against using it in a too finely divided form, as the rapid swelling from the absorption of moisture in the stomach may cause colic and diarrhea.

I have seen no report of the use of agar-agar in the treatment of constipation in children. Some authors say, indeed, that it should not be given to young children. They do not state, however, why it should not. As there seemed to be no very evident reason why the action of agar-agar should be different in children from that in adults, and as the type of constipation helped by agar-agar is not at all uncommon in childhood, it seemed reasonable to me to try it in spite of these statements. I have, therefore, during the past winter, given it to a number of children suffering from this type of constipation. Their ages varied between $2\frac{1}{2}$ and 8

years. The results have, on the whole, been very satisfactory. It has, in this type of constipation, given much better results than the administration of fruit, vegetables, coarse foods and preparations of bran, or the ingestion of large amounts of water. In many instances it has been possible to stop the use of laxative drugs and in all to diminish their doses. In one instance, however, it seemed to lose its effect after a few weeks. In others it has been possible, after a time, to omit it entirely.

The greatest difficulty encountered has been in inducing the children to take the agar-agar. None of them will take it dry or simply with milk and sugar like a cereal. Some of them will carefully separate out each piece in their mouth and spit it out when it is mixed with cereal. Most of them can be induced to take it in this way if it is cut up into flakes about the size of bran and cooked in with the cereal. It can usually be given to the others in broth or soup, if it is thoroughly cooked before it is mixed in. Several hours' hard boiling are required, however, before it becomes homogeneous enough to mix well; otherwise it will surely be detected by the child.

The dosage is rather indefinite, as the quantities usually given to children are too small to weigh on ordinary scales and hard to measure in spoonfuls because of the comparatively large size of the flakes. Children of 4 or 5 years need, as a rule, about two teaspoonfuls of dry flakes, the size of dry rolled oats, daily. This weighs about one dram. Fortunately no harm can result from either an underdose or an overdose, and after a week or two the amount necessary for the individual child is easily fixed.

CONCLUSIONS

Agar-agar is useful in children, as in adults, in the treatment of the type of constipation associated with small, dry stools. It is harmless and in many instances gives most satisfactory results.

70 Bay State Road.

ABSTRACT OF DISCUSSION

DR. ALFRED FRIEDLANDER, Cincinnati: I have used this mixture of agar-agar and cascara with satisfaction by mixing it with some of the desiccated breakfast foods, or with stewed fruits. In this way there has been no difficulty in administration. Doses of about a teaspoonful to children four or five years old gave a satisfactory result, and no bad habit was ever formed in my experience, even if the dose had to be increased.

DR. C. G. KERLEY, New York: I am sorry that I cannot corroborate Dr. Morse's observation. I have found agar-agar very difficult to give. It answered all right for a time, and then lost its effect. I have given it in over forty cases, and my results were not at all satisfactory. My results at first were about the results we get from most cathartics, and the effect gradually fails. The difficulty in getting a child to take it and the absence of good results did not warrant its continuation.

DR. GODFREY R. PISEK, New York: I have also experimented with agar-agar, and can corroborate what has been said about the difficulty of administration. With oat-meal it was taken better than in any other cereal, but the difficulty in getting the child to take it was a great disadvantage. There are a number of selected cases in which I believe agar-agar is beneficial, that is, in those in which there is a deficiency in the amount of the feces and those that have had all manner of drug treatment. These patients react because of the bulk which is left in the intestine, although one is sometimes obliged to stimulate the discharge of the feces by a suppository. At the same time, the fecal movement is softer and larger than ever before, and the parents are satisfied that

2. Mendel: Zentralbl. f. d. ges. Physiol. u. Path. d. Stoffwechs., 1908, No. 17.

3. Schmidt: München. med. Wchnschr., 1905, II, 1970.

4. Gompertz: Am. Jour. of Med. Sc., October, 1909.

progress has been made toward relieving the obstinate constipation. This is so in a limited number of cases, however. I have lately also tried beet-root, but am not as yet prepared to give a report on these cases.

Dr. J. L. Morse, Boston: I am sorry that Dr. Kerley has had so much trouble with agar-agar, and I wish he would try it again. I want to repeat that agar-agar is not a drug, at least, I do not consider it a drug. It is merely a method of keeping the feces moist and increasing their amount. It does not have any irritant action on the intestine.

THE PRACTICAL USES OF ELECTRICITY IN MEDICINE *

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While it is true that electricity is an agent of much practical therapeutic value, it is also true that it is looked on with skepticism by a large number of the profession. The reasons for this would seem to be two-fold: First, the great majority of those who employ it do so without a proper understanding of its capabilities, limitations and the proper technic, and hence do not get the results they expect. As an example of this I not long ago saw a patient with paralysis of the arms due to a neuritis induced by lead, to which the faradic current had been ordered applied for twenty minutes twice daily by a prominent physician. The uselessness and possible harmfulness of such a procedure will be apparent to all acquainted with the proper use of electricity. In hospitals also the electricity is frequently applied by a nurse, who, as a rule, has received no intelligent instruction in its use. Second, some of those who have made a special study of it, have in their enthusiasm made such extravagant claims on slight evidence that many have come to look on all claims made for it either with distrust, or attribute any beneficial results to its psychic influence alone.

THE DIFFERENT CURRENTS AND THEIR PHYSIOLOGIC ACTION

The passage of the electric current through the body does produce actual changes in functions and tissues and for it to be used at all intelligently some knowledge of these varied physiologic actions is essential. These differ somewhat in degree according to the form of current used. There are now employed therapeutically the galvanic or constant, the faradic or induced, the sinusoidal, static and high frequency currents. X-rays while due to electricity, and the various forms of light which may be produced by it, are not considered here.

THE CONSTANT CURRENT

The constant current possesses all of these actions to a greater degree than any of the rest. In the other forms of current some are either absent or so slight as to be practically disregarded in considering the indications for their use. The therapeutic activity of the constant current depends principally on its so-called polar effects, which occur at each pole, the interpolar effects occurring in the region between the poles, and its power of producing muscular contractions. The first consist of electrolysis, phoresis and electrotonus. By its electrolytic action the tissues of the body, composed principally of salines in watery solution, in the region of the poles are

decomposed into their ultimate elements or ions, with the result that the anions, oxygen, chlorine and acids appear at the positive pole or anode and the cations, hydrogen, alkalis and bases are found at the negative pole or cathode. If the current be sufficiently concentrated, caustic and destructive effects are characteristic at each pole, the positive pole particularly searing the tissues by the acid generated, and thus stopping hemorrhage.

By phoresis the fluids and solids either in solution or small particles produced by the electrolytic action just mentioned are transferred from one pole to another, the bulk of the fluids, hydrogen, alkalis and bases (cations) going from the positive to the negative pole and a lesser amount of fluid with oxygen and acids (anions) passing from the negative to the positive. There is thus a double current passing between the two poles. The former is known as cataphoresis and may be employed in therapeutics for the introduction of various drugs into the body; the second is known as anaphoresis and under some conditions, as when it is desired to introduce an acid, may be employed as cataphoresis is. In addition, osmosis is increased, fluids being driven from the anode to the cathode. By this property also we have an accumulation of fluid at the negative pole and consequent vascular congestion, while at the positive pole there is depletion. If the current is weak, these changes are not noticeable, but they are occurring. The electrotonic effects consist of the production of catelectrotonus, or an increased excitability of muscle and nerve produced by the negative pole or cathode, and anelectrotonus, or diminished excitability of muscle and nerve, produced by the positive pole or anode. Muscular contractions are only produced when there is a sudden increase or decrease of the current density, in other words when the circuit is either suddenly opened or closed. While the various phenomena just mentioned are observed most markedly at the respective poles, electrolytic and phoretic effects also take place in the region between the poles. As has been previously stated, whenever the current passes through an electrolyte electrolysis occurs and when it does occur the ions of the decomposed molecules are transferred from one pole to the other according as they are anions or cations. The constant interchange produces metabolic and vascular changes, which facilitate the absorption of morbid exudates and adhesions. To a certain extent also the galvanic current possesses bactericidal properties, but as it is only with very strong currents, it cannot be employed practically for this purpose. It may be said, therefore, that the positive pole is sedative to nerve and muscle, hence may relieve pain and spasm; is capable of diffusing drugs through the skin (cataphoresis, anodal diffusion), is depleting and hemostatic. The negative pole is stimulating to nerve and muscle, hence improves their nutrition, increases moisture and congestion, and if strong concentrated currents are used is most destructive to tissue.

THE FARADIC CURRENT

The faradic or induced current has no power to produce the polar and interpolar effects possessed by the galvanic current, but is an efficient agent in causing muscular contractions, except when the lesion is in the peripheral neuron; i. e., peripheral nerves, nuclei of the cranial nerves and cells in the anterior horns of the gray matter of the cord. It also, when rapidly interrupted, acts as a sedative to sensory nerves and thus may relieve pain. In this respect it is believed to be more effective if a fine wire coil is used. If used with a dry

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

fine-point electrode as the metallic brush, so that the current is at high tension, it stimulates the sensory nerve-endings and may be of value in some forms of anesthesia and paresthesia. As it produces contraction of the muscles it may, if a number of them are excited, cause changes in general nutrition. Weir Mitchell found that an elevation of the body temperature resulted from such use.

THE SINUSOIDAL CURRENT

The sinusoidal current is an alternating current obtained from a rotary converter or dynamo. It differs from the faradic current in that the alternations are gradual, those of the faradic being abrupt. Hence it is much less painful. It differs also from the faradic current in that it will cause muscular contractions in muscles cut off from their trophic centers (peripheral neuron lesions), and is said to be especially effective in exciting contractions of involuntary muscle. Otherwise it acts similarly to the faradic current.

THE STATIC CURRENT

The static current is unidirectional, and hence has a positive and negative pole which have different actions, the positive being sedative and the negative irritating, similarly to the galvanic current. It acts either locally or generally according to the technic employed. Sparks cause contraction of the muscles and other tissues and hence may relieve local congestion or stasis by squeezing out the fluid contents of the tissues and forcing them in the direction of the lymphatic and blood streams respectively. They thus may relieve pain and remove exudation. After the initial contraction there is dilatation of the small vessels and hyperemia. The positive spark is less painful than the negative. Similar results may be obtained by the so-called static wave current.

The spray or breeze especially if positive with negative insulation, is soothing and may relieve pain. The brush discharge, by which is meant the discharge taking place between a patient insulated and connected with a static machine and an electrode of some resisting material as wood, causes considerable local hyperemia, hence an increased leucocytosis, and has been found useful in conditions similar to those in which Bier's hyperemic treatment is indicated. The static bath is asserted to cause metabolic effects shown by increased frequency of the pulse, which may persist for some time after the treatment; a slight rise in temperature, an increase in respiratory combustion; when used with positive insulation an increase, and with negative insulation, a lowering, of the blood pressure; a tendency toward drowsiness; an increased excretion of urea and some increase in the gastro-intestinal functions.

HIGH-FREQUENCY CURRENTS

High-frequency currents also produce a local and general action. The former is produced by either the spark or effluve, and the effect is somewhat similar to that caused by the static spark, except that the contractile action is not so great. Hyperemia with increased leucocytosis and consequent phagocytic action is caused, and some believe that owing to the absorption of the ozone produced there is an increased germicidal action in the blood. There is also, owing to the capillary dilatation, more or less fall of blood pressure. A temporary lessening of the sensibility of the sensory nerve-endings also occurs. Ultraviolet rays are produced. Concentrated sparks are destructive to skin and

small morbid growths. Static sparks also act in a similar way. Local influences are best obtained from either a Tesla coil or resonator, both of which produce currents of high voltage and small amperage.

Freund has asserted that the irritation of the skin and peripheral nerve-endings by these and other forms of high-tension discharge (static spark or the spark from a Rhumkorff coil) reflexly influences distant internal organs. This observation has some significance when the studies of Head¹ are considered. He showed that disease of the viscera caused certain definite areas of pain and tenderness in the skin, there being a constant relationship between the organ affected and the locality of pain and tenderness, this being due to the connection between the sympathetic supply of the viscera by means of the white rami communicantes with the spinal cords and nerves. Brief applications of either static or high-frequency sparks may cause some elevation of blood pressure. Muscular contractions similar to those caused by the faradic or sinusoidal currents are produced by currents from either the D'Arsonval or primary Tesla coils. General influences are better obtained from the D'Arsonval current, which is of lower voltage and greater amperage than either the Tesla or resonator currents. Marked changes in metabolism are produced by it. These are increased tissue changes, more rapid oxidation and increased elimination of waste products in the urine, and, according to most observers, marked diminution of blood-pressure.

EFFECTS ON BRAIN AND CORD

In addition to these various actual changes which electricity is capable of causing in the tissues of the body, must be added its action on the higher mental functions in producing mental impression or suggestion; in other words, its psychic influence. A question of some importance is whether electricity can influence directly the brain and cord through the tissues that cover them. The galvanic or constant current is the only one which seems to have any effect whatever on these structures. Erb showed that galvanization of the head, the electrodes being placed either on each temple or mastoid process, causes vertigo and flashes of light from stimulation of the optic nerves; it seems doubtful, however, that if a current of a safe strength is used enough will reach it after passing through the various coverings of the brain to be of any therapeutic value. Many believe that it will, but I know of no instance where muscular contractions have been produced by such means, and any one who has ever stimulated the exposed cortex, knows how weak a current is used to produce them. Brenner (quoted by Erb) interrupted the galvanic current that was being passed transversely through the head without producing any.² The spinal cord is still more protected by exceedingly thick muscles, ligaments, and membranes and a still greater diffusion of current would occur than in the case of the brain. Erb believed that it could be stimulated, and gives as proof the fact that he placed two electrodes over the vertebra, one being over those of the upper lumbar region, and caused contraction in the muscles supplied by the sciatic nerves. This, however, if the current was strong, could be produced by the diffusion of the current through the mus-

1. Head: Brain, xvi, 1, xvii, 23.

2. Le Duc has undoubtedly influenced the brain by an interrupted galvanic current. The so-called electric sleep or anesthesia being produced. Dangerous symptoms have also been caused and so far it seems to have no practical value.

cles of the buttocks acting on the nerves. If it was caused by the current entering the spinal canal why were the sciatics alone affected?

THERAPEUTIC USES

As indicated by the title, the scope of this paper includes only the uses of electricity in medicine, but it may be said in passing that it is of use in a number of surgical affections; for instance, the employment of either the electrolytic properties of the constant current or the destructive action of static and high-frequency sparks for the destruction of small growths, nevi, moles, etc.; the production of hyperemia by either high frequency or static currents in the treatment of sprains and other local inflammation, and this property combined with the action of the actinic rays generated and the ozone liberated as a remedy for various ulcerations and infections of the skin.

NERVOUS DISEASES

The agent was originally employed medically in the treatment of diseases of the nervous system and there can be no doubt as to its value, when properly used, in the treatment of motor paralysis due to any cause. By this I mean when employed as a means of producing muscular contractions. Whether, as has been before mentioned, enough of the current can be made to reach either the brain or spinal cord to either improve their nutrition or remove sclerotic tissue is an open question. I have never seen any beneficial results from its use in this way. At the same time it must be remembered that the muscular contractions caused by it react on the nerve centers and improve their nutrition, this being especially so in conditions where there is commencing degeneration of spinal or cranial nuclear cells, as in anterior poliomyelitis, etc.

Electricity has been used in various ways in the treatment of tabes dorsalis. That it may at times relieve many of its symptoms, such as the various forms of paresthesia and pain, there is no doubt, but it is difficult to see how it can remedy the disease itself for the reason that even if the attempts to reach the cord were successful the remedy would be useless, because the disease process probably starts in the meninges and posterior nerve roots; therefore involvement of the cord is due to a secondary degeneration produced by cutting off nerve fibers from their trophic centers. As the nerve fibers of the cord, once destroyed, cannot be regenerated, when the disease has reached there irreparable damage has been done. The sedative action of the galvanic anode may at times relieve local muscular spasm; this at times may be of service in the treatment of the contractures resulting from cerebral apoplexy, especially if the weaker extensors are strengthened with the faradic current. This anodal action is also often of use for the relief of the pain of acute neuritis and symptomatic neuralgias. It may be of service in chronic neuritis, especially sciatica, but in such cases better results are usually obtained from either the static or high-frequency currents employed to produce their local hyperemic and contractile action. Most satisfactory results can be obtained in such cases by the proper use of these currents.

The good results that may be obtained in hysteria are well known, such results being due both to the power of causing mental impression and also, possibly, in some instances, the general tonic action of the current.

Electricity may also be of service in neurasthenia. The headaches and other aches and pains are certainly

helped by the static spray. More vigorous treatment may also aid in arousing dormant energy and increasing blood pressure. In some cases good results may be obtained from employing either high frequency or static currents to obtain their general metabolic influence. There can be no gainsaying the favorable influence of general faradization as a part of the rest treatment.

Sexual weakness and psychoses are certainly benefited by electrical treatment.

In the occupation neuroses I have tried various forms of electricity without much satisfaction. Some, however, have claimed good results. As many of these cases are neurasthenic it may be of service with other measures, as a general tonic.

The use of electricity in epilepsy has been advised by some. From the very nature of the disease, however, it is difficult to see how it can be of service. Those who have had large experience in the treatment of the disease have nothing good to say for it. Many cases of so-called epilepsy, also, will be found, if carefully studied, to be due to various organic causes that electricity cannot influence. As autointoxication has some influence in exciting the paroxysms, the asserted eliminative action of high-frequency currents may prove of benefit in some few cases.

The same may be said for its use in chorea, which, if of the ordinary Sydenham's variety, is probably due to an infection, and if of the hereditary type is due to organic changes of the brain-cells and fibers that could not be influenced by electricity. The importance of not using this agent in a haphazard way is shown by its possible employment in myasthenia gravis, a disease in which there is marked exhaustion of the muscles following exertion. One ignorant of the symptomology and history of this disease might be tempted to employ electricity as a muscle tonic when the very exciting of muscular contractions by this means would aggravate the condition.

In mental diseases electricity is of use only in stuporous conditions. In these benefit may sometimes be derived from the application of static sparks as a means of arousing the patient.

ARTHRITIS AND MYALGIA

Since the development of high-frequency currents the range of usefulness of electric treatment has much increased. One of the most valuable has been in the treatment of diseased joints. This is probably due to their power of producing hyperemia. The joints in rheumatoid arthritis especially may be much benefited by their use. In conditions of partial ankylosis following arthritis the absorption and removal of the morbid tissue may be often hastened by utilizing the electrolytic and cataphoric properties of the galvanic current.

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Williams³ and others have advocated high-frequency currents in the treatment of tuberculosis of the lungs and have claimed excellent results. It can do no harm, but if used other recognized and more commonly used methods of treatment should be employed in conjunction. In diseases of the stomach the use of the current has been advised by Ewald, Einhorn, D. D. Stewart and others. It is most applicable in conditions where there

3. Williams: High Frequency Currents, p. 166.

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3. Williams: High Frequency Currents, p. 166.

is either atony, dilatation or functional pain. In chronic constipation from intestinal atony excellent results are obtained.

The lowering of arterial tension by high-frequency currents, especially the D'Arsonval, has been previously mentioned. It has been used for this purpose by many, but that it possesses any advantages over other methods of treatment I am unable to say. The eliminative properties have also been used in chronic nephritis with asserted success and in conjunction with other measures it may be of some help.

The value of the coagulating power of the galvanic anode in the treatment of sacculated aneurism is well known. Hunner⁴ of Johns Hopkins University collected reports of 23 cases, in which there were 4 cures and 9 patients were markedly improved. Other successful cases have been reported since.

The frequency of the heart in exophthalmic goiter may also at times be lessened by the employment of the galvanic current.

Electricity has been found useful in many diseases of the eye. As this, however, is a subject of special interest and not within the domain of general medicine, I will do no more than mention it. The same may be said of diseases of the skin. In addition it may be said that the development of high-frequency currents has greatly increased the value of electrical treatment of many of these diseases.

GENITOURINARY AND PELVIC DISEASES

Electrolysis has been employed in the treatment of urethral stricture by a number of different methods. While successful in some cases, the method has not found favor with genitourinary surgeons. Electricity has also been employed in various ways in the treatment of prostatic hypertrophy, but has not met with much favor. More can be said of its use, especially currents of high frequency, in chronic prostatitis. Disorders of the genitalia of women of a medical nature, as distinguished from those purely surgical, may be benefited by the proper use of electricity. B. C. Hirst advises the use of the galvanic current in amenorrhea, in menorrhagia, especially when due to fibroid tumors, and in hypoplasia of the uterus, and the faradic current for weakness of the vesical and rectal sphincters. It has also been employed in other conditions of these organs of a more distinctly surgical nature with asserted success. As a rule, however, in such cases surgical methods will be found preferable.

Of no small therapeutic value is the property of cataphoresis by which drugs can be introduced into joints and certain cavities of the body.

CONCLUSION

In the space allotted it has been possible to give but a very general mention of the capabilities of this agent. It has been of value in many surgical conditions not properly considered in this paper. It has also been employed in diseases within the domain of internal medicine which have not been mentioned here, as there seems to be no good reason for their treatment by electricity. In conclusion I repeat that to get results from the use of this agent it should be used conservatively, with proper understanding of its physiologic action and of the proper technic.

1728 Chestnut Street.

ABSTRACT OF DISCUSSION

DR. G. BELTON MASSEY, Philadelphia: This interesting paper is an up-to-date statement of the value of electricity in many medical affections; but it indicates one of the errors of my colleagues in presenting electrotherapeutic subjects in too general a way. While we have here an enormous range very well stated of electrotherapeutics in this late day, I think we learn more from a discussion of more circumscribed subjects, with the technic equally well stated but with some portion of the statement in the shape of detailed cases; for after all, our work as physicians is the relief of individual patients. Only last night I was asked to see in consultation in this city a patient in whose case the value of electricity in a hemiplegia case was involved. I knew of nothing to lead me to say that it would be of any value. The academic statements proving the transmission of the current are familiar to us, it having been proved that a minute current will go through the brain after having traversed the living skull structures; but it has also been proved that the bulk of the current will go round the scalp structure. So that in practical medicine we do not need to waste much time on some of these questions of that nature. We want to get down to the actual clinical facts.

It is a mistake to regard electrotherapy as a new subject. I was only recently on the other side at the Physiotherapeutic Congress in Paris, and the scientific exhibit in the hall of the Sorbonne showed ancient apparatus designed by medical leaders for most of our uses of electricity. It is nothing new. The new thing is to bring down to the concrete what we can do for the individual patient by this form of force.

Speaking of hysteria, I fancy the usual feeling about the treatment of this affection is that we must put the patient to bed and carry him through an expensive rest-cure treatment. That is of very great value in the hands of experts, but the ordinary practitioner can often do better than to employ the rest-cure, static electricity being of extreme value in this state. Moreover, it enables us to differentiate between hysteria and neurasthenia, which is a very important matter, particularly if the rest-cure is contemplated, for I think the rest-cure is generally harmful in neurasthenic patients. This test is based upon the fact that static sparks are most painful to neurasthenic patients, and possibly harmful too, while but little pain is produced by them in hysteria. The differential value is in that a large number of hysterical patients show more or less anesthesia. In other words, the static spark is wonderfully well borne by the hysterical patient. Moreover, the patient feels better immediately after the application of the static spark. So that with this method of treatment such patients may be kept on their feet and have the benefit of exercise and other judicious agents. Speaking of the prostate, Dr. Potts made an excellent distinction there. We have a true fibroid tumor of the prostate of the slowly developing form and greatly interfering with the functions of the bladder, and in these cases electricity is not quickly valuable. But the static spark even in these cases will give great relief, removing congestion, relieving the prostatitis and often practically curing the patient; and that is to be expected in cases of pure prostatitis or chronic enlargement of the prostate. I am a little amused that Dr. Hirst, a very recent advocate of electricity in fibroids, is quoted by Dr. Potts as an authority on the subject. It is very pleasing, however, that Dr. Hirst accedes to that sixteen-year old propaganda as to the value of electricity in many gynecologic conditions, particularly in fibroid tumors of the uterus. There seems to me a peculiar value attaching to electric modalities in gynecology, partly due to the fact that we use here very large, commanding currents, currents capable of doing work because of their lack of pain. The field in gynecology is enormous.

DR. DAVID PAULSON, Hinsdale, Ill.: I want to speak of the value of the slow sinusoidal current in relaxed conditions of the abdominal wall. With the sinusoidal current it is possible to produce the most vigorous contraction of the abdominal muscles as well as contractions of the internal ligaments, by simply placing two large electrodes on each side of the abdomen. If persisted in day after day these temporary ef-

⁴ Bull. Johns Hopkins Hosp., November, 1900.

fects ultimately become more or less permanent. It is possible to make a very strong application of the sinusoidal current without producing any pain; hence its great value in these cases.

DR. ALFRED T. LIVINGSTON, Jamestown, N. Y.: It has been implied that the electric modality called galvanism is not particularly efficacious or at least has not many appropriate applications. As to the effect on the brain secured by passing the current through the skull, I think Dr. Massey has made a correct statement; but that is not the way to influence the brain. The brain condition is influenced by stimulating the vasomotor centers which control the circulation in the brain; and that can be done without any question by the application with sponge tip electrodes or some other form, over those three chief centers, the upper, middle, and lower cervical sympathetic ganglia. I have always observed that the stimulation of the lower pair has the most marked effect on the circulation in the head. I recall one of the most extreme cases of acute mania in a woman in Philadelphia, who was brought to my house at about 8 p. m. It seemed from her state that there was not much likelihood of securing sleep, but I took my galvanic battery to her bedside and solely by the use of the galvanic current I put that woman to sleep within three-quarters of an hour by stimulating the cervical sympathetics. I have also used it in cases of hysteria, hysteric convulsions. Dr. Massey referred to the use of the static spark in hysteria. If I were to be limited to but one form of electricity, I would certainly select the oldest of all—galvanism—as having a wider range of application and more certainty of effect than any other. I have also used a hypodermic injection of ergot and within fifteen minutes I have quieted as excited a hysteric patient as I have ever seen. I am perfectly satisfied that the effect of the galvanic current is exactly the same, producing vascular contraction where there had been dilatation. I have used the galvanic current in cases of blindness of various sorts, particularly in cases of atrophy of the optic nerve, and restored a very good vision which continued through many years. Patients whom I treated twelve or fifteen years ago are going about the streets to-day like other people, attending to their business although their cases had been pronounced absolutely hopeless by ophthalmologists, and I was ridiculed for thinking of bettering their condition. I apply the positive pole at the back of the neck with an electrode of 4 by 6 inches. The negative is applied by means of clay electrodes, pulverized clay moistened by water to a paste condition and laid only on the closed lids, the face except the lids being protected by a piece of rubber dam having holes corresponding to the orbits. A pliable metallic electrode such as tin foil is laid over the clay and connected with the negative pole. In this way I have given 15 milliamperes for two and a half hours.

DR. H. M. WHEPLEY, St. Louis: I regret that the author of this paper is not present to explain the purpose for which he wrote it. Previous speakers have criticized the paper as being one which has not given specific cases or detailed technique. I believe that the purpose of the author is to show that caution must be exercised in the proper use of electricity. He points out the variety of forms in which it can be used but avoids going into the citation of detailed cases, which causes so many of the medical profession to rush headlong into the use of electricity without understanding when, where, or how to use it. This paper is filled from beginning to end with the suggestions of caution in the use of electricity. I recall the frequent use of such phrases as "some believe," "Dr. — has claimed," "it is stated," "it may have benefited," "it seems doubtful," etc. This paper is a warning to the medical profession to study electricity carefully in a general way before giving too much attention to reports of specific cases. The use of electricity in medicine is nothing new, but this paper indicates that it is often used carelessly. Its use by the laity is along very empirical lines; I believe that a paper of this kind full of cautions and written for publication in the newspapers would have a wonderfully good effect on the public. We know only too well how ready the public is to use electricity as a medical agent; laymen buy

so-called batteries and other forms of apparatus claimed to produce electricity when there is no possibility of its being generated by the apparatus that is sold for that purpose. I feel that the paper from the standpoint of the author is not subject to criticism that has been made of it by the previous speaker. It does not go into the details of cases and technique, but it does sound a timely note of warning to those who use electricity in a haphazard manner.

DR. HAVEN EMERSON, New York: If a quarter of what is so conservatively claimed by Dr. Potts' paper is correct, certainly the medical schools of the country ought to take on themselves the burden of teaching some of the elementary principles of electrical application in the treatment of disease. If anybody has seen the relief from lumbago and sciatica, if anyone has seen the improvement in chronic joint affections which electricity will give, I think he will admit that electricity deserves as much consideration in the courses of medical instruction as a good many of the drugs which are now admitted as valueless in the treatment of disease. The teaching of intelligent pharmacology has eliminated a good many drugs from our class rooms. The inclusion of some such methods as Bier's hyperemia and electricity in the teaching of applied therapeutics will certainly help us in diffusing a knowledge of appropriate treatment. I am of the opinion that electricity assists in restoring the tissues to normal, after chronic inflammation, by improving local circulation, by developing hyperemia, and that in exact experimental analysis of the results we should find that this is the cause of its benefits. Massage, constriction, hyperemia, and electrotherapeutics deal with the local blood-supply. Such measures are as useful as many a drug taught and prepared in pharmacologic studies, and their consideration should be included in our medical schools.

DR. G. BERTON MASSEY, Philadelphia: I appreciate Dr. Whelpley's skill in extracting from this paper what suited him, but I must object to his failure to remember that I spoke very highly also of Dr. Potts' paper. I must protest that we are not here for newspaper articles. We are here to advance each other's art of treatment, and mere negations will not help us.

CLIMATIC TREATMENT OF PELLAGRA

A PRELIMINARY NOTE

C. C. BASS, M.D.
NEW ORLEANS

All writers on pellagra seem to agree that it is a disease of warm countries and of the warm season; that patients with the disease usually improve at once when cold weather sets in, and that many of them never show further evidence of the disease. The literature at my disposal does not show that cold climates have been tried for the treatment of the disease, owing largely, no doubt, to the fact that many pellagra patients cannot afford the expense of going to and of living in such climates. In a paper published in 1909 I called attention to the probable influence of temperature on the course of pellagra.¹

On several occasions in discussions on the subject last year, notably at the pellagra conference in Columbia, South Carolina, in the symposium on pellagra of the Southern Medical Association, and at the conference on pellagra at Gulfport, Mississippi, I also called attention to this fact and proposed the advisability of arranging artificially refrigerated wards, especially for the poorer class of pellagra patients who could not take advantage of climate.

In June, 1909, I had arranged, with very limited means at command for the purpose, an artificially refrigerated room for a pellagra patient then under treatment.

¹ 1. New Orleans Med. and Surg. Jour., August, 1909.

This was a mechanical failure, as it reduced the temperature only about 12 degrees, which was very little below the summer temperature.

I had the fortune to see in the spring of 1910 a patient with pellagra who had gone to Colorado for similar symptoms in 1909. She was then greatly relieved by the climate, according to her statement, and remained well; but the same influences of diet and hot weather induced another attack. She returned to the mountains of Colorado and was promptly relieved of all recognizable symptoms.

Since that time I have sent to Colorado four other patients, all of whom are symptomatically relieved. They have all gone to Denver and after spending a few days there to become accustomed to the altitude, three of them have gone higher up in the mountains. One of them was bed-ridden when she left here but was up in ten days and without recognizable symptoms of pellagra in two weeks.

I have sent two patients to Monteagle, Tennessee, and they write that within one week they had improved wonderfully and almost all symptoms had disappeared.

These cases and others will be reported more in detail when the results obtained can be more definitely stated. This preliminary note is published now in order to suggest the treatment for the benefit of the August and September crop of cases.

741 Carondelet Street.

PARSIMONY IN NUTRITION

GEORGE M. NILES, M.D.

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ATLANTA, GA.

This title, adapted from a recent address of Sir James Crichton-Browne, represents a wide-spread dietetic movement which I view with some concern. Previous to this century, throughout the history of the advancing civilizations of the earth, there has never been any concerted effort toward parsimony in nutrition; and, with the exception of certain ascetic orders, whose habits of self-denial were either religious or esthetic, the desires for food have been universally gratified, subject only to limitations of purse or environment. The doctrine that a strong body should be generously fed, and that a virile people should be hearty eaters, was of world-wide acceptance. Furthermore, it was noted that the liberal consumers of the flesh proteins figured most largely in the arts of both peace and war, while the vegetarian nations either lagged behind, or were the servitors of their meat-eating masters.

In accordance with these historic and economic facts certain dietetic standards have been fixed, these standards being the aggregate result of statistical and experimental studies carried out by many physiologists on numerous large groups of individuals under varying circumstances. These results were collected by Atwater, of this country, and Voit, of Munich, who found that an average individual under average conditions thrrove on a daily allowance of 118 gm. of protein food, 56 gm. of fat, and 500 gm. of carbohydrates, such as sugar and starch, this containing 3,055 large calories, or heat units. Under increased physical exercise this was raised to 3,370 calories. These findings were approxi-

mated by a large number of independent observers, most of them, however, allowing a slightly higher daily protein ration.

These standards having been settled with supposed immutability, all was serene until in the dietetic firmament there appeared a new galaxy. We were informed that the theories drawn from the dietetic experience of untold millions of progressive and militant human beings, were altogether erroneous; and, like the man with the eight-day clock, who wound it up every night for twenty-five years before he discovered his error, we have been partaking of double or treble the amount of protein necessary for our well-being. We might say that after these cons the light has just broken in, opening up to us a new heaven and a new earth.

The advance guard of this new thought was Mr. Horace Fletcher, a gentleman of intelligence and culture, who, finding himself obese, dyspeptic, and in declining health, accidentally discovered that by slow, deliberate eating he was much benefited. Being both observant and analytical, he reasoned out a theory that the whole process of bodily nutrition is materially affected by the preliminary treatment of food in the mouth; furthermore he became satisfied that by most thorough mastication and insalivation less food is required for adequate nutrition, while bodily conditions are improved. He sums up his philosophy as follows: "If you eat only when you have an earned appetite, masticate your food thoroughly, and take great care to eat only what your appetite approves, the rest will take care of itself."

Like many other fads containing elements of truth this "chewing fad" attracted to it a circle of adherents, and, fortunately for Mr. Fletcher, it caught the ear of some level-headed physiologists, among others the late Sir Michael Foster, of Cambridge, England, and Dr. Van Someren, of Venice, the latter of whom read a paper on "Fletcherism" before the Congress of Physiologists at Turin in 1901. This led to a series of experiments at Cambridge, which were later continued in America by Professor Chittenden, of Yale, the latter, however, losing sight of the chewing feature, except as it lessened the craving for food, and hinging his experiments on the momentous question: What is the proper daily protein ration best to meet the requirements of the average human body?

The investigations of Professor Chittenden,¹ are in some respects epoch-making contributions to physiology. The experiments were on groups of professional men, army volunteers, athletes and animals, and proved to his entire satisfaction that 60 gm. of protein daily is sufficient for a man weighing 154 pounds, or practically one-half of the previously accepted standard. To quote his words:

These are perfectly trustworthy figures, with a reasonable margin of safety, and carrying perfect assurance of really being more than sufficient to meet the true wants of the body, adequate to supply all physiological demands for reserve protein, and able to cope with the erratic requirements of personal idiosyncrasies.

The limits of this paper will not permit an analysis of Professor Chittenden's experiments, showing where fallacies may exist, or where conclusions are drawn on too meager evidence. He is a doughty antagonist, and one may well hesitate before breaking lances with either him or the formerly obese Mr. Fletcher. They have

1. Chittenden: *Physiological Economy in Nutrition*; and *The Nutrition of Man*.

made out a strong case, but not an impregnable one, and I humbly suggest that we pause and consider before revising our whole dietetic system, not simply, as expressed by the recent tariff tinkers in Congress, "revising it downward," but absolutely cutting it down to half.

That a large percentage of the American people eat too much is admitted; that a large percentage, especially the well-to-do, ingest a surplus almost from the cradle to the grave cannot be gainsaid. The great number of middle-aged and old people, who constantly throng the doctors' offices and health resorts, seeking help for overtaxed eliminative organs, mournfully attest to past gastronomic excesses; but that the American people, as a nation, consume too much protein food, or that our national virility is handicapped by gluttony, cannot be conceded by any student of present-day history.

Leaving for a time the discussion of this subject in its larger aspects, a common illustration of parsimony in nutrition is the custom of some medical men of putting patients on dietaries without duly considering the caloric values contained therein. It would be thought careless indeed should the physician, not know, in prescribing atropin or strychnin, how much in the aggregate was being taken daily; yet it is just as irrational to expect an invalid to gain strength on a diet furnishing insufficient calories, as to expect physiologic effects from inadequate doses of drugs.

I have several times seen persons unwittingly starved to a dangerous degree, and in one instance a case came under observation in which the patient, while being treated for an acute disease, was really starved beyond the power of recuperation before his true condition was recognized.

The appetite of healthy individuals or large groups of men will generally prove a reliable index to bodily needs, but in digestive disorders accompanied by malnutrition it is not enough for the physician to cut out offending articles of food; he should also see to it that sufficient calories are being furnished. Right here it is proper to sound a note of warning concerning the alcoholic proprietary foods on the market. As an auxillary to other nourishment they have their place, and are not without value, but to give them in amounts large enough to meet ordinary caloric needs would result in continued alcoholic intoxication.

A few years ago in New York City I saw a genuine attack of delirium tremens complicate a case of typhoid fever, in which for two weeks the patient had been generously "supported" by a well-known and popular proprietary food. In this connection I wish to commend the thorough and impartial work of the Council on Pharmacy and Chemistry of the American Medical Association, whose very lucid reports have done much to dispel the glamour thrown about some of these alcoholic "supportives" and individually I desire to speed it in its meritorious labors.

The dry proprietary foods are equally unsatisfactory, because in adequate quantities they often disturb digestion more than the ordinary wholesome foods, while the caloric value claimed for them is unreasonable. Dr. David Edsall, of Philadelphia, recently weighed a specimen of one of these dry foods, and reported that if all its weight were nutritive material (a liberal estimate), it was so light that it would take \$1.25 to \$1.50 to buy an amount equal in food value to a five-cent loaf of bread.

Some of the most graphic examples of parsimony in nutrition are exhibited by infants (not the chubby ones with roly-poly little bodies extolling the virtues of various brands) whose eager digestive organs are vainly attempting to glean sustenance from some of the infant foods on the market.

Dr. John Howland, of New York, in a late paper on proprietary and predigested foods, showed by calculation that two of the most representative and widely used of these foods have little more than twice the nutritive value of whole milk, and that without the alcohol they contain the same nourishment as milk. The dose of these foods advised for a child of six months is a teaspoonful every four hours, which would give the infant the munificent equivalent of two ounces of milk daily! Dr. Howland further says:

Assuming that such a food could be ingested without grave gastric, intestinal or other disturbance in sufficient quantity to nourish the six-months-old infant, it would cost about a dollar a day, and would, moreover, require the child to take in twenty-four hours alcohol equivalent to six ounces of brandy, enough to terminate his short life or keep him in a continuous state of alcoholic coma.

Another greatly overrated class of foods leading to parsimony in nutrition are the meat-juices (not meat extracts), for which fabulous powers have been claimed. Well-expressed juice obtained from freshly chopped beef may contain a fair amount of actual nourishment in the form of coagulable proteins and meat bases, and is useful to tide over emergencies, or to satisfy the patient that he is being fed. It would take the stomach of a rhinoceros, however, to hold up under a continuous diet of meat juice for any length of time.

As to meat extracts, they are beyond parsimony—they are a delusion and a snare. To quote Dr. A. L. Benedict, of Buffalo.

A meat broth prepared at a temperature above 160° F., the coagulation point of albumin, contains salts, extractives, which are mainly excrementitious, and a little gelatin, as well as some melted fat, although the last is often skimmed off to make the broth more pleasing and palatable. In so far as protein is concerned, a meat tea made by boiling cannot be more nourishing than egg tea, that is to say the water in which eggs are poached, or in plain words, it contains no protein nourishment at all, and is, barring certain qualitative and quantitative differences, of the same dietetic value as urine.

On such a regimen the patient may be fairly waterlogged with soup, and still get less than a hundred calories daily. If strength holds up under such feeding, it is from the reserve protein and fat stored in the body, not from any decided nutritive virtue in the soup.

It is of course wise to provide for economical use of the body fuel, just as engineers endeavor to get the most heat value from coal or wood burned in the furnaces of their engines. It is also well to minimize the surplus ashes of combustion in the body, as the engineer keeps his grates cleared of clinkers. There is, though, a point beyond which economy ceases and parsimony begins, and there can certainly be no permanent healthy growth, nor can there be maintained a normal "moving equilibrium" in the bodies of individuals or nations unless there is a liberal intake of protein food, for, as Rubner declares, "A large protein allowance is the right of civilized man."

Sir James Crichton-Browne tersely puts it thus:

The health and welfare of individuals and of peoples must depend on right methods of living, and of all methods of liv-

ing the most momentous are those relating to the up-keep of the body by alimentation. It is food that supplies the material for that perpetual series of transformations in which life consists, and it must be adequate in quantity and suitable in quality, if these transformations are to proceed with that nicely balanced adjustment that is known as health. . . . Nutrition is therefore an important branch of preventive medicine.

It may be confidently asserted that no physiologic alchemy or mathematical legerdemain can ever hope to reduce materially the fixed demand for approximately 120 gm. of protein daily for every active individual of average weight. The late Sir William Roberts once said:

The generalized food customs of mankind are not to be viewed as random practices adapted to please the palate or gratify an idle or vicious appetite. These customs must be regarded as the outcome of profound instincts which correspond to certain wants of the human economy. They are the fruit of colossal experience accumulated by countless millions of men through successive generations. They have the same weight and significance as other kindred facts of natural history, and are fitted to yield to observation and study lessons of the highest scientific and practical value.

The foregoing thoughts are respectfully submitted to the sober students of both individual and collective problems of nutrition.

409 Candler Building.

A CASE OF FRACTURE OF THE THYROID CARTILAGE WITH PROMPT RECOVERY

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POUGHKEEPSIE, N. Y.

Fractures of the larynx are generally considered grave injuries. When one considers the danger of suffocation from displacements of the fragments, or from edematous swelling, or from occlusion of the air-passages with blood-clots, one can understand why a case of this kind should not be looked on lightly. Fisher pronounced every case serious. Gurlt in 1864 collected reports of 69 cases in which 47 patients died and only 21 recovered. Eastman¹ quotes Durham, who collected reports of 30 cases of fracture of the thyroid cartilage, in ten of which the patients recovered, most of them after tracheotomy. During the past few years a few cases have been reported in which the symptoms were of a mild type. The "American Practice of Surgery" states that tracheotomy is not usually necessary in the simple cases and those of vertical fracture of the thyroid, but is indicated in any fracture of the cricoid cartilage. The case I observed was one without complications. Because it shows how exceedingly light the symptoms resulting from such a fracture may be I thought it worthy of publication.

An insane man (aged 49) was forcibly struck over the larynx by a fellow inmate. At the time no indications of injury were observed, and the patient went to the dining-room and ate his breakfast. Soon some hoarseness developed. This soon became more pronounced, and his throat appeared somewhat filled up with mucus. There was a constant desire to swallow. An examination disclosed a complete vertical fracture of the thyroid in the median line. Crepitus was distinct, but there was no apparent displacement. As there

were no dyspnea, and no sign of suffocation, it was thought best to immobilize the fragments and await further developments. Immobilization was secured by padding on each side held in place by adhesive strips. As swallowing caused slight movements of the fragments, the patient was allowed no food for twenty-four hours. His voice continued hoarse for four days; then there was a rapid improvement. On the seventh day the fixation strips were removed, and a perfect union was found. On the ninth day the patient was up and about as usual.

Some surgeons believe that tracheotomy should be performed immediately after such an injury in order to forestall suffocation. Eastman¹ refers to Cohen, who says: "It is better that an unnecessary tracheotomy should occasionally be performed without detriment to the patient than that a number of cases should be allowed to terminate fatally for the want of it." This is very true, but if the symptoms are of a mild type and the surgeon is in a position to render immediate service if the case demands it, one is justified, I believe, in delaying active procedure.

If the patient be allowed to swallow too early the fragments will be moved and union interfered with. Weaver's patient² attempted swallowing at long intervals during the first twenty-four hours, but this moved the fragments. Weaver then resorted to nutritive enematas for three weeks. Tube-feeding through the mouth can be used to advantage in cases in which the throat is not too sensitive, so as to cause reflex movement of the larynx.

I take this opportunity of expressing my thanks to Dr. Chas. W. Pilgrim, Supt. of the Hudson River State Hospital where this case was observed, for the privilege of reporting it.

A VOLSSELLUM FORCEPS WITH DETACHABLE HANDLES

A. HERZFELD, M.D.

NEW YORK

Occasions frequently arise when curettage, or in fact any vaginal operative interference on the uterus, has to be done without sufficient assistance. In many cases for better orientation the grasping of the uterus has to be done through a bivalve speculum. It is very difficult,



Volsellum forceps with detachable handles.

if not impossible to remove the bivalve speculum after the uterus is grasped with the ordinary volsellum forceps on account of the width of the handles of the instrument. To facilitate the removal of the speculum, I devised a volsellum forceps with detachable handles. The handles are easily applied and removed by means of a bayonet lock.

224 West Twenty-Fourth Street.

1. Eastman, T. B.: A Case of Fracture of the Thyroid Cartilage: Recovery without Tracheotomy, THE JOURNAL A. M. A., 1895, xlv, 161.

2. Weaver, H. S.: Fracture of the Larynx, Hahnemann Month. Philadelphia, 1901, xxxvi, 282.

GUNSHOT WOUND OF THE CHEST AND
INJURY TO THE SPINE

WITH SPECIAL REFERENCE TO PROGNOSIS

R. T. FERGUSON, M.D.
GAFFNEY, S. C.

I report this case to furnish some idea of the prognosis to be made in cases involving injury to the spine. The literature on prognosis in such injuries is very incomplete.

History.—The patient, a colored man, aged 21, single, laborer in a railway camp, was shot July 18, 1909 at close range with a 38-caliber revolver, the ball entering the eighth interspace on the right side one inch to the right of the mammillary line, passing downward and backward and emerging through the eleventh interspace behind in the mid-scapular line $2\frac{3}{4}$ inches to the left of the spinous process of the eleventh dorsal vertebra. The man was hauled 4 miles in a wagon and 12 on train with no dressing on either wound.

Examinations.—The pulse was 130, the temperature 102, respirations 30, paralysis of the left thigh and leg was complete. There was retention of urine and paralysis of rectum with involuntary evacuations; loss of all sensation in the left thigh and leg supplied by the musculocutaneous, external saphenous, anterior tibial, external and internal plantar, and internal calcaneal and the lower part of the leg that is supplied by the lateral cutaneous and internal saphenous nerves.

Course of Case.—The patient had to be catheterized for two weeks, after which there was involuntary urination as well as defecation for six months; since that time he has improved steadily until now (twelve and a half months after injury) he can control bowels perfectly and retain his urine four to five hours. A bed-sore six inches in diameter developed over the sacral region and smaller ones over both hips, which caused a considerable amount of trouble.

Temperature ranged between 101 and $104\frac{3}{5}$ for a month, after which time it became normal. After two months the patient could move the toes slightly, then the foot, knee and thigh; and six months after the injury he could move the entire leg a small distance in every direction. August 9, 1910 he is walking around quite well without the use of his crutch and gives every indication of an early and complete recovery. The injury to the spinal cord appeared to be limited to the direct pyramidal tract and antero-lateral column in the left side of the cord.

800 Limestone Street.

Bilateral Herpes Zoster.—Dr. Lester C. Diddy, Oswego, Ill., writes: Reading the article in THE JOURNAL (July 30, p. 372), by Drs. Varney and Jamieson brought to mind a similar case, which occurred in my practice recently, of which the following is a brief report: Mrs. S., housewife, aged 54, American, whose family history is negative, as far as anything bearing on the present condition is concerned, had the ordinary diseases of childhood, since which time she has been healthy. There is no history of injury at the site of eruption. Pain of neuralgic character appeared several days before the lesions, which were typical of herpes zoster. They first appeared on the left side, in the dorsal region near the mid-axillary line, and gradually extended over nearly the entire left half of the chest and abdomen anteriorly and posteriorly. Lesions appeared on the right half of chest and abdomen and extended until they met those on the left side, completely girdling the patient. The lesions became very extensive and caused no little annoyance. They extended upward to the second rib in front and to the scapula behind, downward to the groin on the right side, and about half way down the left thigh, and down the back as far as the buttocks. The inner surface of the left arm was also affected, nearly to the wrist.

CASE OF A SPOOL EMBEDDED IN THE
CERVIX UTERI

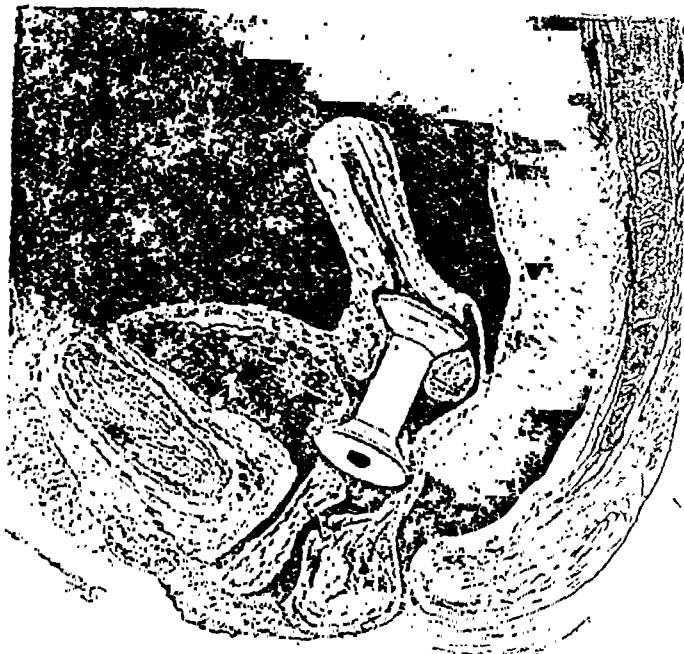
A. P. STONER, M.D.

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tending Surgeon Mercy Hospital.

DES MOINES, IOWA

History.—S. L., aged 16, colored, entered my service at the surgical dispensary of Drake University, July 14, with a history of pelvic trouble of some years standing. She menstruated at 13 for 5 successive periods, after which time the period ceased altogether.

Examination.—Her general condition and appearance was good and she was of average intelligence. On investigation the underclothing was found to be saturated with urine and the vulvar region was excoriated. A vegetative growth of small size and of a reddish hue, surrounded the meatus, and urine was trickling from the vagina. The examining finger came in contact with a foreign body in the vagina, which proved to be a wooden spool. Further examination showed that one end of the spool which measured about 5 centimeters in length, was securely embedded in the cervix. The free end was grasped with a pair of forceps and an attempt made to extract it, but this effort created great pain, and chloroform was administered. A more complete examination was



Drawing to show position of spool before removal, with infantile uterus and fistulous tracts from bladder and uterus into vagina.

then made. The uterus was retroverted and its body atrophied. The cervix held the spool tightly, about its middle third. One edge of the upper end of the spool through pressure necrosis, had worked its way through the uterine tissue back into the vagina.

Treatment.—As it was impossible to extract it forcibly or to dilate the canal the cervical tissue was divided at this point and the spool released.

Remarks.—The free end of the spool was covered with calculeous salts and its upper edge had protruded into the base of the bladder, creating a vesico-vaginal fistula, through which the index finger could be freely passed. The girl denied all knowledge of the presence of a foreign body in the vagina, but stated that when she was about 8 years old her mother, who was very unkind to her, had placed something in the vaginal canal which gave her great pain and caused hemorrhage for a few days. She has had more or less discharge ever since, she claims, but it was not until 8 or 9 months ago that the urine began to pass through the vagina.

The length of time the spool had been in the uterus, and the manner in which it had become embedded

therein are of interest. Conception and abortion were denied, and excluding the latter, the only plausible solution seems to be, that the spool was inserted by the patient into the vagina, and as she was probably unable to remove it, the upper edge of the spool by constant pressure against the external os produced sufficient dilatation to allow the spool to pass into the cervical canal. This new position assumed by the spool then caused retroversion of the uterus, while its presence interfered with the nutrition and growth of the organ. The opposite end of the spool also assumed a more intimate contact with the bladder wall, causing pressure necrosis and a fistula. The walls of the vagina were found to be thickened, very nodular and much reduced in depth.

CONCUSSION OF THE BRAIN

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PHILADELPHIA

In this day and generation a justification is desirable when a single case is reported. This is particularly in order when the case is one of cerebral concussion. Nevertheless, on account of the extraordinary symptom-complex and course of the case in question, I offer no apology for its presentation.

History.—August 6, 1910, E. D., male, aged 6½, weight 49 pounds, in robust health, fell while running on the porch, striking the left side of his head. The time of the accident was about 4 p. m. Judging from the position of the ecchymosis, which was very slight, the point of impact must have been about 4 cm. above and 2 cm. behind the external canthus of the left eye.

I saw the child within ten minutes of the accident. The nurse said that after he fell he got upon his feet immediately, crying lustily. He was very pale, and the nurse thinking that he was more scared than hurt, sought to pacify him by walking. He had not gone far before he said: "I can't see anything but sky."

Examination.—My examination revealed the following condition: Total blindness in both eyes for both form and light. A lighted candle held 25 cm. from his eyes in a darkened room gave no visual impression of light. The irides reacted to light. All extraocular movements were perfectly normal. The hearing in each ear was normal. The tongue was protruded in the median line. There was no involvement of the facial muscles, and the elevation of the soft palate was normal and symmetrical. The movements of the upper and lower extremities were normal in all directions. The reflexes of the upper extremities were normal and no spasticity was present. Both knee jerks were greatly exaggerated, and although there was no ankle clonus present, yet the sudden flexion of the foot at the ankle provoked one quick reflex extension movement. Passive movement of the lower extremities demonstrated a very decided degree of spasticity. Normal plantar reflex was present on right, but a well marked Babinski reflex was elicited on the left. The pulse was full but irregular, and at the rate of 63 to 72 per minute. The breathing was deep and sighing in character, and at the rate of 16 per minute. He answered questions readily, and showed great mental distress because he was afraid he would never see again. After the examination he quickly went to sleep. He could be aroused from this sleep, and showed no predisposition to lie on either side. During this sleep the breathing still maintained the deep sighing character.

I made my second examination about one hour after the first, at which time all the symptoms as above recorded were present, with the exception that on testing the eyes with the candle he said that it seemed a little lighter when the candle was placed 25 cm. in front of his eyes. The Babinski reflex

on the left at this examination was pronounced. In a half hour from this time he called a lighted candle a lighted match. In another half hour, two hours from my first examination, he was able to recognize a lighted candle as such, but could not distinguish objects, such as a pair of scissors, knife, picture, etc. From this time on his eyesight returned with great rapidity, and three hours after my first examination he was able to distinguish objects and people with great precision. On account of his general condition I did not make any examination of his visual fields at this time. His temperature never went above 99.4 F. At 10 p. m. I found his vision normal, pulse 72, temperature 98.4 F., respiration 18. At this time I found the Babinski reflex on the left hard to elicit but questionably present. The chief symptom at this time was vertigo on motion.

Subsequent Course.—The next day he felt perfectly well except for the vertigo which was present when he was propped up too erectly in his bed. He had an attack of nausea and vomiting at 5 a. m. A careful examination for hemianopsia, astereognosis and lack of sense of position in the limbs proved negative. His reflexes were all normal and the Babinski reflex on the left was replaced by normal plantar flexion. The recovery was uninterrupted, and four days after the accident he was leading his normal life. There was never any disturbance of bladder or rectal functions. The only therapeutic treatment was magnesium sulphate to open the bowels.

The case is interesting on account of the rapid clearing up of the complete blindness, the sudden causation of the monolateral Babinski reflex, which cleared up within eighteen hours, and the very evident interference with the spinal reflex inhibitory mechanism with no symptoms of compression.

After writing the above report, the *Deutsche medizinische Wochenschrift* (August 4, 1910) has come to hand, in which is a short paper by Hirsch of Prag ("Ueber passagere Rindenblindheit durch Commotio cerebri"). There is no mention of any examination for involvement of the central nervous system, other than a careful examination of the eye. He cites Wildbrand and Sänger ("Die Neurologie des Auges") as having collected seven cases of similar nature.

111 South Twenty-first Street.

Therapeutics

GENERAL PRINCIPLES IN THE MANAGEMENT OF DISEASES OF THE HEART

As has been a number of times stated in these columns, with all our knowledge of physics, of cardiac ability and cardiac disability, of blood pressure, of arteriosclerosis, of myocarditis and cardiac muscle degenerations, with all our better knowledge of physical therapy and of the pharmacologic action of drugs, still there are no defects of mankind that are so many times mismanaged and mistreated as are cardiac defects. They are mistreated from the very fact that the drugs and methods used are powerful for good or bad, and not only may the wrong method be instituted, but too much or too little of the method or treatment may be used.

Sir James Barr, of Liverpool (*British Medical Journal*, April 24, 1909) discusses the above subject and especially urges the attempt to prevent the development of serious disease of the heart in various conditions, and especially to prevent that which is due to rheumatism. He states a fact, viz., that though the majority of sudden deaths are due to a cardiac cause, still there are very few chronic diseases so amenable to treatment and so compatible with long life and comfort, if judiciously handled, as are diseases of the heart.

As a prevention of heart disease he properly urges the prevention of rheumatism in the children of families who have shown a tendency to it. Although rheumatism is doubtless always an infection, still, like the development of tuberculosis, there is a tendency to or an inherited lack of ability in certain families to combat this particular germ. Hence Barr believes that such children should always be warmly clothed, that they should have daily baths, either warm or cold, to keep the skin in good condition, that proper fresh air and physical exercise should be taken, that they should not over-eat or over-drink, and that the bowels should move freely, daily. This simply means first class, sensible hygiene aiming to prevent poisoning with food products, and to cause increased circulation in the muscles and therefore less pressure internally, and to promote perfect functioning of the skin. The parents of children who are likely to have rheumatism should be especially cautioned to take note of everything in the line of so-called "growing pains." As there is "an increase in the formation of sarcolactic acid and all the excretions are very acid in rheumatic fever," Barr would prevent this increased acidity of secretions of possibly rheumatic children by omitting starch and milk from their diet. He believes that milk forms lactic acid during digestion. As a matter of fact, probably, in healthy digestion milk does not form lactic acid. Still such is his belief that he would not give such children milk. Also in rheumatism there is a great tendency to form fibrin; hence he would give nothing to such children that contained lime, and he would cut out of the diet cheese, gelatin and animal jellies, as well as milk. As lime also raises the blood pressure, he thinks that milk is a bad diet during rheumatism, and has condemned it since 1886. He gives as a diet in rheumatic fever plenty of hot water, chopped meat, poached eggs, thoroughly cooked oatmeal gruel, oranges and lemons. After the acute attack is over he varies the diet by allowing a certain amount of farinaceous food, plenty of fruit and vegetables, but he still prohibits the milk. Such a diet in rheumatic fever is certainly different from that generally followed, but he believes that he may thus prevent cardiac complications.

A patient who is rheumatic and is putting on flesh and getting fat and flabby should immediately have his food amount reduced and his diet so arranged that he will not only not increase in weight but that he will lose what is superfluous. Barr urges what is also very essential, especially if the patient has a defective heart, that the liquid be reduced to two pints a day, or even less, if this does not so deplete the tissues that some of the fat is resorbed. Patients with valvular lesions should not use tobacco at all, should take but little tea and coffee and, if there is any edema, even if the kidneys are not affected, should cut down the amount of salt in their diet.

If endocarditis has developed, the blood pressure should be kept as low as possible with a prolonged rest in bed, but as soon as the heart muscle improves the patient should be allowed to get up and gradually begin ordinary exercise, as anything that brings the blood to the muscles and dilates the surface capillaries is a relief to inflamed parts that are trying to heal permanently. While the patient is in bed after the rheumatism has ceased, massage should be daily given, to do what can be done to stimulate the muscular circulation. After the patient has permanently recovered graded exercise, mild hill climbing, etc., should be advised, but Barr does not believe in any such strenuous work for an in-

competent heart as advised by Oertel. Marriage, he thinks, especially of females, should be prohibited when there is valvular disease of the heart.

As the left side of the heart has the most work to do, it is its valves that are most likely to be permanently damaged by an endocarditis, and anything that aids the plasticity of the blood, as calcium in any form, and anything that increases the blood tension, which puts the most work on the left side of the heart should be interdicted. Respiratory exercises are valuable as aiding the right side of the heart.

Cardiac disturbance caused by diphtheria and typhoid fever is more myocardial inflammation than endocardial, and in both these conditions the blood pressure is generally low enough from the disease. The heart readily dilates and becomes weak but the valves are not injured. Here lime salts as present in milk are advisable and will do good, although an injudicious amount of milk, as any other liquid in injudicious amount, is a mistake in any weakened condition of the heart. Barr thinks it quite possible that the tendency to arteriosclerosis after typhoid fever may be due to an injudicious amount of calcium administered with milk during the fever process. Although we are firm believers that about a pint of milk is sufficient per diem for a typhoid patient and do not believe in the enormous quantities of milk that have been given in this fever, it hardly seems probable that the little calcium in milk, or even the lime water that may be added to the milk, could be a cause of arteriosclerosis so often seen to follow typhoid fever.

The failure of the heart in diphtheria is partially due to disturbance of the pneumogastric nerve, and such a heart needs a tonic, not only lime but iron and possibly digitalis. The same cardiac depression as seen in diphtheria, although not as acutely serious, may show itself in influenza, where cardiac debility is prolonged and tedious. This is probably a nervous debility. Here lime is valuable; also strychnin, atropin, and perhaps digitalis.

Whooping cough injures the heart physically and is likely to injure the right side, and in whooping cough Barr advises the administration of atropin or perhaps other cardiac tonics. In all cases of whooping cough it is advisable, as long as the cough is severe, to administer digitalis regularly in such doses as meet the requirements of the child's age and condition.

In any infective endocarditis an autogenous antitoxin cannot be too soon developed, as such a complication shows that the disease is beyond almost any other control.

Barr states what is so well understood by physicians but so little understood by the laity, viz., that chronic heart lesions of all kinds are extremely amenable to treatment. This means that generally for years a patient may lead his ordinary life provided he will follow out the rules and regulations advised. Of course, sooner or later every diseased heart is beyond repair, but even in the worst instances amelioration of symptoms is generally for a long time possible. Moderate exercise, Barr urges, brings the blood to the muscles and relieves the inner tension and prevents the development of chronic disease of the organs from continued internal congestion. Excessive exercise is, of course, serious and should be interdicted because of the sudden extra work put on the heart. Large eating of any kind is inadvisable, and especially is it inadvisable to eat too much protein, as the blood loaded with insufficiently oxidized protein products can do nothing but debilitate the heart muscle and irritate the arterioles to greater

contraction and thus put more work on the heart. While at many so-called "cures" enormous amounts of water are administered to flush out the system "as though a sewer was to be cleaned," the inadvisability of loading up the circulation, especially the venous circulation, with extra amount of fluid is readily understood from a physical standpoint; it can sooner or later do nothing but harm. This of course is especially true if there is edema or a tendency to edema, to say nothing of general anasarca. It is so much more sensible, in conditions of internal congestion, to diminish the food, give a small amount of liquid, to gradually eliminate toxins from the system, and then to prevent more toxins from being formed.

Barr well says that he does not believe in any routine system in the treatment of chronic heart disease, but the patient should be individualized: the amount of exercise, hot baths, sweatings, food, and drink that one patient should take is not at all a criterion of what will be of benefit to the next patient.

We can but agree with him when he urges the necessity, in lack of compensation in valvular disease or in an acutely weak heart from any cause, for absolute bed rest, in fact, complete repose, not even rising to dress. It certainly is no time to consider exercise when a patient has great loss of compensation, as is shown by edemas, dyspnea, albuminuria, nosebleed, petechiae, profuse menstruation or even uterine hemorrhage, or bleeding from the lungs. It may generally not be advisable to have the patient absolutely flat in bed during the whole day; even if he can lie on one pillow, it is advisable several times a day to have him recline on two or three or even four pillows. This is all the exercise the heart requires until it becomes stronger. A diminution of the liquid taken, and especially the withholding of salt (sodium chlorid) and the administration of just sufficient nutriment to provide for nutrition, and a daily evacuation of the bowels will, even without cardiac tonics, often cause diuresis and an absorption of the fluid extravasations. If in spite of an improvement of the arterial circulation the circulation of the veins is sluggish and the edema, especially of the extremities, is not readily removed, Barr suggests bandaging the extremities.

When the heart muscle is not much diseased, advanced arteriosclerosis is not present, and the heart is dilated, there can be no question of the value of digitalis in most instances. The arterial blood pressure should, however, be carefully noted, and if this is high digitalis is not the drug to administer. If it is low, digitalis is generally the drug to be used. The amount must depend on the tolerance of the patient and the results obtained. The dose should not be too frequent; two or three times in twenty-four hours is sufficient, as it is slowly excreted. If the blood pressure is high or there is much arteriosclerosis, or if the lesion is an aortic lesion, many times the vasodilators are the drugs most efficient. Sometimes digitalis causes digestive disturbances sufficient to prohibit its use, and if digestive disturbances are not in evidence it may cause headache; and yet the blood pressure may be so low as to contraindicate the use of vasodilators. In such apparently hopeless cases which are often accompanied by pulmonary congestion from failure of the right ventricle, often accompanied by the expectoration of bloody sputum, sometimes an actual venous hemoptysis, no treatment is as valuable as the so-called hot air treatment or "body bake."

While repeated baths are almost always advisable in heart disease, and while the Turkish bath will often cause sufficient elimination to improve the circulation, it can do harm, but the body bake, with the head exposed to the fresh, clean air, and the peripheral circulation of the body dilated and profuse perspiration caused, all under careful supervision of the pulse by an expert, will relieve internal congestion, reestablish and equalize the circulation, and cause a return of compensation when all other means have failed. Also, in conditions of failing heart due to arteriosclerosis no amount of dilators or other treatments will reestablish the circulation and give a prolonged amelioration of symptoms and apparently perfect health as will the body bake. The blood pressure will be reduced by this means and remain reduced for months under proper simple regime, after it is once brought down by the body bake. Such baking should not be too frequent, possibly every other day for once or twice, then once in five days or once a week, combined with at first rest in bed, then gradual convalescence, and then graded exercise.

If a patient, for any reason, must remain long in bed, massage must be done daily to keep the muscles in proper condition, to keep the circulation in the muscles normal and to relieve the internal congestion.

The expectation of forced diuresis alone doing much good in cardiac failure with anasarca is generally without justification. Under the management suggested albuminuria, which is caused by the chronic congestion of the kidneys from a bad heart, is relieved, and as soon as this congestion is lessened an increased output or urine takes place without a diuretic.

Barr urges the danger in anasarca from failing heart, even with almost anuria, of causing profuse watery evacuation of the bowels with any cathartic. Many a death is thus caused by the depletion and weakening and the terribly low blood pressure caused by salines.

Any bath treatment that equalizes the circulation and brings the blood to the surface and relieves internal congestion, or stimulates sweating and causes increased capillary circulation, whether the carbonic acid bath, the Nauheim bath, or any massage, will almost always aid in improving the circulation in heart disease.

It would prolong this article too much to discuss the relative values and relative indications for the cardiac tonics and stimulants other than digitalis, or to discuss the various methods of producing dilatation, or the best method of treating angina pectoris and cardiac pain and irregular and intermittent heart action, but it should be urged that alcohol is not a real cardiac stimulant; that tobacco always weakens the heart muscle; that any excess of lime is contraindicated in arteriosclerosis and when there is an increased coagulability of the blood or a tendency to plastic exudates.

Ethics.—Standards of ethical conduct—that is, conduct which not only extends to the development of individual character but also to that of the well-being of the race—have undergone considerable evolution, the most potent single influence which has been brought to bear on them being Christianity. "An eye for an eye and a tooth for a tooth" of the Jewish law, is supplanted by the offering of the other cheek to the smiter, of the Christian dispensation. Taking the world as a whole, even to-day, external standards vary enormously with the degree and kind of civilization—and its lack—with the religion and organization of society, the physical peculiarities of a country, the density of population, means of communication and a thousand other things.—F. B. Shattuck, in *Cleveland Medical Journal*.

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CHOLERA AND CIVILIZATION

The reappearance of cholera in Europe raises again the question whether the twentieth century, like the nineteenth, is to witness pandemics of this disease sweeping over Western Europe and even extending at times into the United States and Canada. Fortunately we now possess very definite information concerning the modes of spread and usual vehicles of infection of this once greatly dreaded malady. It is, for example, an incontrovertibly established fact that a sewage-contaminated water supply is responsible in practically all cases for the epidemic prevalence of cholera. Scattered cases of the disease may occur in a city with a pure water supply, but no general and widespread infection need be feared so long as the water supply remains uncontaminated.

The sudden outbreak of cholera which occurred in Hamburg in 1892, and which attacked about 17,000 persons and carried off 8,600, might well have been predicted by sanitarians on the basis of the known facts regarding the entrance of sewage into the river water from which Hamburg obtained its supply and the significant prevalence of typhoid fever in that city. So too at the present day, if cholera should become at all widely distributed in this country, we could predict with a high degree of certainty those sections of the country and even the communities that would suffer most severely. Cholera in even greater proportion than typhoid fever is a water-borne disease.

Almost any article of food or drink may occasionally serve as a medium for conveying typhoid infection. Of course such substances as milk, vegetables and fruits consumed without cooking are to be regarded as particularly dangerous, but any food handled or kept under uncleanly conditions may be the means of introducing cholera vibrios into the intestine. Flies fed with cholera-infected material have been found to contain the vibrios in their intestines for as long as fourteen days.

"Cholera carriers" have been shown to exist in the persons of healthy individuals resident in districts where

the disease prevails. There seems no doubt that cholera spreads from locality to locality not by bales of merchandise, but by the carriage of the specific germ in the body of man himself. Dunbar has stated that in the Hamburg epidemic of 1892-93, he was able to detect the cholera vibrio in no fewer than twenty-eight persons who were entirely healthy and had never manifested any symptom of cholera or had suffered the slightest attack of diarrhea.

The immediate practical deduction from these facts seems plain. It is more rational to expend our efforts in improving general sanitary conditions in this country than to establish a shotgun quarantine and attempt—probably in vain—to prevent any person harboring cholera vibrios from landing on our shores. Attention to the ordinary demands of civilization, the elimination of sewage from our water supplies, the insistence on clean milk and bread, the banishment of the common drinking-cup and the roller-towel, the extermination of the house-fly and other vermin, the observance of a decent degree of cleanliness in the streets and in the house—such measures will go far to avoid the danger of cholera epidemics now and henceforward. More than once has it been shown that in default of an efficient system of national and municipal sanitation, quarantine is but a broken reed. The British sanitary system makes a clear recognition of this principle. Nearly twenty years ago a distinguished British official wrote:

"For England the abandonment of quarantine has been an almost unmixed good. The knowledge that no pretense would be made to keep out all chance of cholera in this country, has done more perhaps than anything else to induce our sanitary authorities to spend their money on great works of sanitation and on such improved sanitary administration as is likely to prevent the spread of any imported disease of the type of cholera. Millions have been spent to this end; but, on the other hand, hundreds of thousands of lives have been saved. Even if cholera should once more succeed in passing the barrier of our ports and, diffusing itself inland, cause a heavy mortality, we should still be enormously the gainers in point of human life by the system which we have so deliberately adopted, but there is no doubt that our system is rather calculated to prevent than to lead to such a contingency."

Local isolation and general sanitation are the most effective defenses against cholera, as against typhoid fever and many other infections. To use a simile of Pettenkofer's, insanitary conditions may be looked on as a kind of powder for which cholera is a spark; it is a much wiser procedure to see to it that we allow no such inflammable powder to accumulate than to spend our efforts in frantic attempts at beating off the spark.

SEWAGE DISPOSAL BY DILUTION

It is often considered a procedure far from ideal to discharge sewage without treatment into the nearest large body of water, whether ocean, lake, or river. Yet many municipalities are so situated that this is the least expensive course open to them, and it is not surprising that hard-pressed city administrators find the least costly way the most tempting. On the public health side this method of sewage disposal always raises two questions: first, whether the degree of dilution proposed is sufficient to avoid offensive decomposition, and second, and more important, whether the procedure involves contamination of the city's own water-supply, or of that of any other municipality. Where either of these conditions can be shown to exist exception must be taken to this mode of sewage disposal.

In this country, many cities situated on the Great Lakes have long made a practice of discharging their sewage directly into the lake water at the most convenient point. Unfortunately these cities have also drawn their drinking supply from the same body of water within a few miles, or even a few hundred yards, from the sewage outfall. The result has been that, as is well-known, in times past several of these cities suffered severely from water-borne disease. Buffalo, Cleveland, Chicago, Toronto, Milwaukee, and other cities, have all at various times had occasion to deplore the close connection between water-supply and sewage disposal. It may therefore come as something of a surprise to find leading sanitary experts, including the chief engineers of the state boards of health of Massachusetts, New York and Pennsylvania, giving their sanction to a proposal to discharge the raw sewage of Rochester, N. Y. (population about 200,000) into Lake Ontario. The local features that have led to such recommendations are worth noting as an illustration of the fact that under proper conditions sewage disposal by dilution may be legitimately practiced.¹

At present the Rochester sewage passes into the small Genesee River, which flows into Lake Ontario and at certain seasons is greatly overburdened, so that a serious nuisance is caused. The new plan proposes to discharge the sewage, after a slight period of sedimentation followed by screening, directly into Lake Ontario in water 55 feet deep, 7,000 feet from shore. The proposed outlet is about three miles from the Rochester and Ontario Water Works, but according to the opinion of the sanitary engineers, the process of filtration to which the water is subjected renders danger of infection very unlikely and in no case greater than at present. It is also the belief of the experts that the likelihood of contamination of the Oswego water-supply, 50 miles distant, is too remote for practical consideration. The degree of dilution outlined under this project, is sufficient to avoid any possibility of a nuisance.

Altogether the reports of the experts in the Rochester case constitute a strong endorsement of the principle of sewage disposal by dilution. No water-supply is threatened, a present nuisance is abated, and no fresh nuisance created. Given suitable conditions, such as seem to exist at Rochester, it must be admitted that sewage purification by dilution may be a safe and legitimate solution of the sewage problem.

ORGANIC ARSENIC PREPARATIONS—EHRlich's 606

The prominence into which organic arsenic compounds have again been brought by their application to the treatment of protozoan diseases, such as sleeping sickness, and, more recently, syphilis, makes it seem desirable to call attention to a few fundamental facts which are apt to be overlooked. Merely to warn¹ against the ready acceptance of optimistic preliminary reports in a general way is not sufficient; it is better to consider the principles underlying the action of these substances and to base our warning on well-known difficulties.

The action of organic arsenic compounds is fundamentally an arsenic action and depends on the destruction of the organic radicle, with the liberation of the inorganic portion. Against this view may be cited the clinical observation that the use of inorganic arsenic preparations is not attended with the same success as can be obtained with the more special preparations, such as atoxyl, or more recently "606." This difficulty can be easily understood, however, when we consider that the efficiency of such compounds depends on their specific affinity for the protozoon, in other words their ability to enter the protozoon in preference to the tissues of the host. After they enter the protozoon their action is essentially an arsenic action, but their specificity of distribution between the invading organism and the host depends on the structure of their organic radicle. In the course of a search for such specific differences a vast number of preparations have to be examined, as the above number, "606," would indeed suggest.

The dangers and the difficulties in the practical application of these compounds, which recent work has disclosed, are due to two facts, careful attention to which is necessary on the part of everyone wishing to form a fair judgment. In the first place Ehrlich has found in treating trypanosome infections, that a certain proportion of the protozoan are tolerant to the arsenic preparation. The well-known difficulty—the incomplete destruction of the invading organisms—encountered in treating a case of mixed infection in malaria is here rendered more difficult by the fact that even under the most favorable conditions it is impossible to destroy completely all the invading organisms. This fundamental difficulty has not yet been overcome and is very likely to apply to the similar case of the spirochete of syphilis.

1. Engineering News, Aug. 11, 1910.

1. THE JOURNAL, Aug. 13, 1910, p. 601.

From this difficulty arises the second complication, the danger of giving these substances in overdose. This danger is particularly prominent with organic arsenic preparations, on account of the large amounts which can be given before the arsenic action is apparent, and on account of the great difficulty in making an early diagnosis of arsenic poisoning. When we consider the difficulties that have been encountered in the recognition of such well-known cases of arsenic poisoning as the Manchester epidemic, poisoning by ferrosilicon,² and a number of criminal cases, obscure until chemical analysis revealed the cause, the very great danger likely to arise from this source will be apparent. Some who are familiar through long use with Fowler's solution may be inclined to minimize this danger. We must remember, however, that Fowler's solution is very soluble and easily eliminated while the very nature of organic arsenic compounds depends on their ability to show more or less of a cumulative action. This cumulative action may lead to the well-known symptoms of chronic arsenic poisoning, among which peripheral neuritis accompanied by blindness is perhaps the most apparent, although a great many more obscure complications due to injury to the capillary walls are also apt to occur. In the use of atoxyl in sleeping sickness, several cases of blindness have been reported.

This criticism is not intended to be destructive but rather constructive. If arsenic compounds are destined to give us the long-sought specific for syphilis, the final decision as to its usefulness must depend on the results of clinical experience. During the experimental period, however, attention should be directed to the two principal points here outlined: the completeness of the destruction of the invading organism, and the careful control (preferably by quantitative estimations) of the arsenic eliminated during treatment to avoid the danger of cumulative action. Professor Ehrlich's caution in guarding against the general use of his preparation cannot be too highly commended.

Current Comment

OSTEOPATHS CANNOT SIGN DEATH CERTIFICATES

A New York court has decided that local boards of health cannot recognize death certificates issued by osteopaths until a coroner has made an investigation. The decision sustains the position taken by the corporation counsel of the City of New York. In rendering the decision, Judge Putnam said, "While the state has wisely allowed the practice of osteopathy, it does not follow that it thereby holds one without any practice in surgery or experience in prescribing drugs as fully qualified to certify the cause of death... The sanitary code is discriminatory but the discrimination is not personal or arbitrary. It is based on a limitation which the

osteopath may be said to make for himself and deprives him of no right he ought to exercise consistent with the public safety." The essential point in the decision is Judge Putnam's statement that the limitations of osteopathy have been made by the osteopath. Whenever an osteopathic bill has been before a state legislature, the osteopaths themselves have been most vehement in their declaration that they were not physicians and that osteopathy was not the practice of medicine, consequently they could not be made amenable to medical practice acts. Yet as soon as the osteopathic bill is passed, they demand the privileges of legally qualified physicians. The personal practice of osteopathy is comparatively unimportant. The recognition of osteopathy, scientifically and economically, is a most important matter. Osteopaths, as a class, must accept one of the horns of the dilemma. If they are physicians practicing medicine and surgery, then they are amenable to medical practice acts and there is no justification for allowing them to practice medicine and surgery on a basis of qualification lower than that exacted of other practitioners. If they are not physicians and if they are not practicing medicine, then they cannot expect to exercise the functions of legally qualified physicians. While the decision referred to above is not final, the ruling is so clearly in line with common sense and logic that it will undoubtedly stand.

AMERICANIZING OF FOREIGN NAMES

The Prussian Minister for Commerce and Trade urges that a German becoming a citizen of the United States should retain his original name rather than Americanize it. While this recommendation doubtless was inspired by a commendable spirit of patriotism, it is also to be endorsed on practical grounds. The changing of names indulged in by many of our foreign-born citizens, as well as by their children, has a confusing effect in tracing lines of descent, family connections, relationships, etc., especially on public records and documents. The matter is of medical interest because it frequently happens that a medical student of foreign birth or parentage graduates from a medical college under one name, receives his state license under another, and in a few years is practicing under a third designation. The names may either be variations of the original or in some cases entirely different, with much confusion in personal identity as a result.

PRESIDENT TAFT ON PUBLIC HEALTH LEGISLATION

The efforts of certain interested individuals to make it appear that the President has withdrawn from his position on advanced health legislation have been nullified by the latest utterance of Mr. Taft. In a letter carefully prepared for publication in the Republican Campaign Handbook the president enumerates the measures to which the Republican party stands committed. The letter may be regarded as representing not only the personal views of the President but the position of the party also. "As to future legislation," the President says, "a number of promises remain to

be kept." After alluding to important commercial and economic measures, he continues, "There is also the promise of the Republican platform to make better provision for securing the health of the nation. The most tangible and useful form that this can take would be the establishment of a National Bureau of Health, to include all the health agencies of the government now distributed in different departments." The public health plank of the Democratic platform of 1908 was even stronger than the declaration of the Republican platform. The proposed federal health legislation is being supported without regard to political affiliation. The question is in no sense a partisan one. It is simply a problem of method—a problem of the best way to unite and strengthen existing health agencies of the government. Mr. Taft's recognition of the obligations of his party and of his administration with regard to health legislation will go far toward making possible the passage of a satisfactory law in the near future.

BUDDING ELOQUENCE

In a periodical published by a medical students' fraternity we find this gem: "If men and women will awaken from their sleep of apathy, throw aside the mantle of inertia, wash from their eyes self-centered indifference to needed reforms, and try to get nearer to that utopian time when man will really love his fellow-man and will strive to do unto others as he would have others do unto him, then will the child be really given a fair chance. With such a resolve for the future, with enlightenment, justice and liberality for guides it can be accomplished, and a race of people of such moral, mental and physical excellence be developed as to render Earth nigh akin to Heaven." Note the prodigal extravagance of the first sentence, in which the author feels able to afford four figures of speech. And yet again, note the beautiful progress of the figures: to awaken from sleep; to throw aside the *robe de nuit*; to perform one's morning ablutions—what a realistic touch! Surely we have here a coming medical poet.

YELLOW FEVER

In the United States and Cuba, at least, yellow fever has become almost a historical disease. Not so much can be said, however, for the Central and South American countries. The gulf states, realizing this, and anticipating a large increase in commerce with the southern countries with the completion of the Panama canal, with commendable caution are keeping in view the possibility of a return of this scourge to their cities and towns. The *Gulf States Journal of Medicine and Surgery* in commenting on a paper by Dr. Charles A. Mohr, on the symptomatology of yellow fever, which it publishes, urges physicians practicing in the gulf cities to familiarize themselves with the symptoms of this disease and to make a searching examination of every case of fever occurring from August to November so that the disease may not gain a foothold. It suggests that while

the U. S. Public Health and Marine-Hospital Service is performing an invaluable service in preventing the introduction of the fever into the South, the gulf cities are not doing their full duty in destroying the stegomyia and their breeding-places so that yellow fever could not spread if it once gained entrance. It is the "swat" of the mosquito in time that saves nine lives.

EHRLICH'S SYPHILIS REMEDY NOT YET ON THE MARKET

In view of the far-reaching consequences of that dread disease, syphilis, and especially in view of the remarkable success which is reported to have attended its treatment by Ehrlich's arsenic preparation, it was only natural that the announcement of this remedy should have created intense interest and a demand for the substance. We have heard of a number of men starting for Europe, to endeavor to see Ehrlich and to secure some of the remedy. Hundreds of others doubtless have written him. One letter was sent in care of THE JOURNAL to be forwarded, because the writer had only the word "Frankfort" for Ehrlich's address and questioned whether this meant "Frankfort, Ky.," or some other place. Without doubt, Professor Ehrlich has received more letters than he is at all able to answer. It is fitting therefore, for us to warn the profession in the words of a cablegram just received from one of THE JOURNAL's foreign representatives:

"Ehrlich says doctors stay home, don't write; 606 market November."

In other words, the remedy will be ready for distribution in November, and at present, physicians will find it useless as well as annoying, both to themselves and to Professor Ehrlich, to write to him or to go to Europe to see him. One who saw a similar concourse waiting on Koch after his great announcement, described it as such an embarrassing throng that even eminent men had difficulty in securing an audience. Practically everyone there had wasted his time in going. The warning is a timely one. In the interim, THE JOURNAL will continue to keep its readers fully informed on the subject.

HOW THE RELIGIOUS PRESS ASSISTS IN HUMBUGGING THE PUBLIC

"Vitæ-Ore,"¹ according to its exploiters, is the "dried residue of the greatest curative spring in the world"; according to Bulletin 69 of the North Dakota Agricultural College Experiment Station, it is a mixture of Monsel's and Epsom salts. The marvelous (commercial) possibilities of this preparation—it sells at a dollar a package—were "discovered" by one Theophilus Noel, who is said to have at first peddled the nostrum in order to get a start. Soon, an advertising campaign was instituted in religious papers and was kept up with great persistence. As business increased, a British depôt was opened in London and the clergy of that

1. See also THE JOURNAL A. M. A., Feb. 2, and 16, 1907; also Propaganda for Reform, page 208.

country received letters from the concern in which the personality of Christ was used to boom the sale of the nostrum. Evidently this combination of piety and quackery has proved profitable. The newspapers of a few days ago contained an item regarding the divorce suit brought against Theophilus Noel—referred to as "the millionaire 'patent-medicine' manufacturer"—in which the wife testified that it would be impossible for her to live on less than \$500 a month at Noel Heights, the California residence of the nostrum vender. She said that it would cost that much to keep up the premises and pay the servants. With the domestic affairs of this enterprising promoter of modified Epsom salts our readers are not interested, but the testimony quoted is striking evidence of the value of well-advertised piety as a "patent-medicine" asset. To the religious press of America, more than to any other one factor, Mr. Noel owes his financial success; to such satisfaction as this particular field of journalism may derive from this fact, it is more than welcome. Fortunately religious papers are awakening to the iniquity of the whole wretched "patent medicine" business and the advertising field for such preparations as Vitæ-Ore is becoming daily more restricted.

ELECTIVE MEDIA FOR CHOLERA VIBRIOS

The appearance of cholera in Western Europe adds interest to the attempt to discover a culture medium which shall facilitate the isolation of the cholera vibrio. An attempt of this sort was made a short time ago by Dieudonné,¹ who took advantage of the well-known tolerance of the vibrio for alkali. The blood-alkali-agar prepared by him has been tested with favorable results by Huntermüller² and others. Still more recently Neufeld and Woithe³ have published results of work with the medium and have somewhat extended Dieudonné's observations. These latter authors find that ordinary agar rendered strongly alkaline has the same effect in suppressing *B. coli* and in producing a characteristic cholera vibrio colony that Dieudonné's medium is credited with. Indeed they declare that simple alkalization of peptone water with potassium or sodium hydrate (0.7 to 0.8 per cent. normal solution) affords a medium that possesses some advantages over the alkaline agar.

Medical News

GEORGIA

Resolutions Regarding Dr. Calhoun.—A committee of the board of trustees and the faculty of the Atlanta College of Physicians and Surgeons, at a joint meeting held August 29, adopted resolutions recounting the distinguished services of the late Dr. Abner Wellborn Calhoun, deploring the loss of his wise counsel, and deprivation by his death of his contributions for the public welfare, and setting apart a page in the records of the institution to be inscribed to his memory.

ILLINOIS

Personal.—Dr. Edward S. Winbigler, Alexis, is reported to be seriously ill at his home with septicemia.—Dr. Hiram T. Hardy, Kaneville, was operated on in Wesley Hospital, Chicago, August 27, for the removal of gall-stones.

1. Centralbl. f. Bakt., I, p. 107.
2. Centralbl. f. Bakt., I, 1909, I, p. 109.
3. Arb. a. d. k. Gsnqtsamte, 1910, xxiii, p. 605.

Tuberculosis Hospital in Evanston.—The Chicago Fresh Air Hospital, recently organized with Dr. Albert S. Ochsner as vice-president and Dr. Ethan A. Gray as medical superintendent, has secured a farm of 20 acres on the boundary between Chicago and Evanston with accommodations at present for 23 patients.

Notes About Hospitals.—The plans and specifications for the new hospital building for the Peoria Deaconess' Hospital are ready. The building will cost it is estimated about \$45,000. It will be of stone, 5 stories in height and fire-proof and will adjoin the present hospital building.—The hospital for the new Naval Training Station, North Chicago, which will be finished next month, is to be so arranged as to minimize noise. The nurse and emergency calls are to be made by light signals instead of buzzers or bells.

Chicago

Personal.—Dr. B. K. Shimonek has been elected director for the Central Division of the North American Esperanto Association.—Dr. and Mrs. Thos. D. Palmer have returned from Europe.

College Merger.—The American Medical Missionary College of Battle Creek and Chicago has been merged with the College of Physicians and Surgeons, Chicago, the Medical Department of the University of Illinois.

Hospital Notes.—The work of erection of the Iroquois Memorial Emergency Hospital at 87 Market Street, has been commenced, and it is expected that the relief station will be ready to receive patients about Jan. 1, 1911. The cost of the building is estimated at \$30,000. On its completion it will be turned over to the city and will be operated by the Department of Health.—The Francis E. Willard Memorial Hospital has purchased a lot 48 by 125 feet on Lincoln Street, adjoining the present hospital. The lot is improved with a two-flat building which will be remodeled and used for the nurses, and will accommodate 30. It is to be known as the Hobbs Home in honor of Mrs. J. B. Hobbs, the recording secretary. Plans for the Nelson Morris Memorial Institute of Medical Research, opposite the Michael Reese Hospital, have been completed and the work will begin in a few days. The building will be 100 by 96 feet, and four stories in height.

LOUISIANA

Hospital Buys Sanitarium.—The Presbyterian Hospital of New Orleans has acquired possession of the New Orleans Sanitarium for about \$180,000. It is proposed gradually to develop a charity department of the sanitarium under the charge of the hospital authorities.

Health Board Laboratory.—The State Board of Health will move from the Perrine Building to the new Court House Building, New Orleans, early next month. A new laboratory is being equipped in the new quarters, which will be ready for operation as soon as the change is made.

Personal.—Dr. A. Penn Crain, Shreveport, has been appointed bacteriologist and chemist of the State Board of Health, vice Dr. Jacob M. Bodenheimer.—Drs. Charles J. Landfried, Homer Dupuy, Lieven D. DePoorter, Allan A. Kennedy, John P. Leake, and A. Benjamin Gaudet have resigned from the staff of the New Orleans Eye, Ear, Nose and Throat Hospital.

MARYLAND

State Medical Society to Meet.—The Medical and Chirurgical Faculty of Maryland will hold its semi-annual meeting, September 12 to 14, at Annapolis, where extensive preparations have been made for entertainment. On the second day a symposium will be held on the administration of the State Board of Health with addresses by the various heads of the departments of that body. On the third day a joint meeting will be held with the Maryland Psychiatric Society.

Baltimore

New Building for Hospital.—The new ward building of the Bay View Hospital, which has cost \$55,000, is reported to be complete but will not be occupied until the water, heat and power plant, contracts for which have just been made, is finished.

Hospital Ship.—Dr. R. Martin Bruns has advocated a hospital ship for babies on the plan of the Boston and New York floating hospitals. He claims that with \$60,000 he can equip a ship and care for patients for two years, provid-

ing for 100 day patients and their mothers and 50 permanent patients.

Personal.—Dr. E. H. Brannon, who has had charge of a railway field hospital on the upper Amazon for two years, has returned to Baltimore. —Dr. Thomas W. Keown sailed August 31 for Ireland. —Dr. John T. King has returned from Europe. —Dr. Charles A. Fetterhoff has been appointed resident physician at St. Luke's Hospital, vice Dr. Samuel E. Edmunds, resigned. —Dr. Herbert H. Haynes, demonstrator in anatomy at the College of Physicians and Surgeons, has resigned and will practice in Clarksburg, W. Va.

MISSOURI

Tuberculosis Tour Ends.—The tuberculosis car, sent through the southwestern portion of the state by the State Society for the Relief and Control of Tuberculosis, has returned after a trip of 1,265 miles. A second trip is contemplated in September.

Aid for Sanatorium.—W. C. Root, Kansas City, consulting architect for the Missouri State Sanatorium for Incipient Tuberculosis, Mount Vernon, after careful investigation, says that the work in general has been well done at a reasonable cost, and advises the expenditure of \$35,000 for a new infirmary building.

To Save Sight of Babies.—Social settlement workers and physicians have organized the State Sight-Saving Society—the Missouri Association for the Prevention of Blindness. Dr. John Green, Jr., St. Louis, is chairman, and Drs. Clarence Loeb, Frederick J. Taussig, and Albert H. Hamell, all of St. Louis, represent the State Board of Health on the directorate. The object of the association is the awakening of the public mind to the enormous amount of preventable blindness throughout the state.

Personal.—Governor Hadley has been elected president of the Missouri Association for the Prevention and Control of Tuberculosis. —Dr. William W. Graves, St. Louis, has sailed for Europe. —Dr. Francis L. Reder, St. Louis, will sail for France this month to attend the twenty-third French Congress of Surgeons. —Dr. and Mrs. Francis R. Anthony, Maryville, sailed for Europe August 15. —Dr. Hasbrouck DeLamater has been appointed assistant to the health commissioner of Kansas City. —Dr. Elmore O. Smith, Kansas City, is said to have been fined \$100 on the charge of maintaining a private hospital for treatment of cancer without permission of the Hospital and Health Board.

NEBRASKA

Personal.—Dr. Warren W. Thompson, West Point, has been appointed assistant physician to the State Hospital for the Incurable Insane, Hastings. —Dr. William F. Callas, Omaha, has been appointed chief of the department of anatomy at Barnes University, St. Louis. —Dr. Samuel C. Beach, McCook, has been appointed a member of the board of health of Red Willow county.

State Board of Control Favored.—The state political conventions have inserted planks in their platforms endorsing the creation of a state board of control for charitable, penal and reformatory institutions. At the coming session of the legislature, an act incorporating the best features of the Iowa and Illinois laws will be introduced as a constitutional amendment. This movement has been endorsed by the county societies, the state medical society, and the Nebraska Association for Charities and Corrections.

NEW JERSEY

Cocain Dealers Sentenced.—Harry Simmons, Camden, and his wife are said to have been found guilty of the illegal sale of cocain and opium, and to have been sentenced to two years' imprisonment.

Personal.—Dr. Samuel D. Bennett has been appointed medical inspector of Millville public schools, and Dr. Duncan W. Blake, Jr. of the Gloucester City public schools. —Dr. Gustave A. Schoening and family, Trenton, have sailed for Europe.

Tuberculosis Camp for Union County.—A committee of the board of freeholders of Plainfield have recommended an administration building and four lean-tos to be built on the site of fifty acres at a cost of not to exceed \$50,000, to be raised by the issue of bonds.

NEW YORK

Personal.—The will of the late Mrs. Sarah Flower contains a bequest of \$50,000 for Dr. Murray M. Adams, Watertown. —Dr. George A. Leitner of Piermont, Dr. William Medaugh Dunning, and Dr. and Mrs. A. L. Wolbarst, New York City, have sailed for Europe.

New York City

To Enlarge Hospital.—Plans have been filed for converting the four-story private dwelling adjoining the Hospital for Deformities and Joint Diseases, New York City, into an office and dispensary, and a nurses' dormitory for the institution.

Vacancy in Dispensary.—Washington Heights Hospital Dispensary, 551 W. 165th Street, announces a vacancy in the medical and surgical department, Tuesdays, Thursdays, and Saturdays, 2 to 4 p. m. Applications should be made to Dr. Louis Neuwelt, 2424 Seventh Avenue.

Proposed Colony for Lepers.—It is understood that the Board of Health intends establishing isolation quarters for lepers on North Brother Island. There are at present four men living in a small house on Blackwell's Island who are suffering from the disease in its last stages.

Want Straus Milk Stations.—The New York Milk Committee has sent out a statement expressing regret at the announced intention of Nathan Straus to close his milk depots. The commissioner of health has also spoken very strongly on the subject. He says: "To see these milk stations shut down would be to witness a great public calamity."

Avoidance of Accidents.—The large number of street car accidents in New York City has led to the printing on the back of transfers the following warning: "Never leave a street car until it has come to a full stop. In this way you will do your share for the betterment of the service and the lessening of accidents. Most street-car accidents are due to the non-observance of this simple rule. May we look for your cooperation in this regard?"

Law Breakers.—Forty bottles of cocain are said to have been found on a man arrested in front of the police headquarters, August 22. This is said to represent the supply of cocain for Chinatown for one day. The original source of the illegal supply has not yet been traced. —William Bechtold, a former nurse in the U. S. P. H. and M.-H. Service, Stapleton, is said to have been convicted of the practice of medicine without a license, August 24, and to have been sentenced to imprisonment in Richmond County jail for thirty days.

Academy to Discuss Animal Experimentation.—The New York Academy of Medicine has purchased property at 10 W. 44th Street, and 15 W. 43rd Street, either for the purpose of remodeling the present building, or for the erection of a new building. The anniversary meeting of the academy will be held November 17, and will be devoted to animal experimentation in medicine. Addresses will be delivered by Dr. William W. Keen, Philadelphia, on "The Influence of Antivivisection on the Character of its Advocates;" by Dr. William H. Welch, Baltimore, on "The Objections to Proposals of Further Legislation to Regulate Animal Experimentation;" by Dr. W. B. Cannon, Harvard Medical School, on "The Character of Antivivisection Literature."

Buffalo

Personal.—Dr. Emil S. Tobie has been appointed a member of the board of trustees of the J. N. Adams Memorial Hospital for Incipient Tuberculosis. —Dr. David E. Wheeler arrived in Athabasca Landing, Alberta, August 30, after a sojourn of several months in the Keewatin country of the north.

Hospital for Incipient Tuberculosis.—Bids for the J. N. Adams Memorial Hospital for Incipient Tuberculosis, the new municipal hospital to be built at Perrysburg, were recently submitted at \$158,415. The trustees have decided to readvertise and double the capacity of the institution. The sum of \$200,000 is now available for construction and equipment. The site of the hospital was presented to the city by former mayor J. N. Adams. The hospital will accommodate about 300 patients.

Scarlet Fever.—Four new cases of scarlet fever have developed at Cradle Beach, the resort of the tenement children

of Buffalo, about 250 children are at this camp and conditions are believed to be so serious that the State Health Department has sent Dr. Edward Clark to investigate them. For more than two years the Buffalo Academy of Medicine and the county medical society have called the attention of the council repeatedly to the serious condition of the infectious disease situation in Buffalo, due to the fact that the facilities for the segregation of this class of patients are limited and insufficient.

NORTH CAROLINA

Visit State Tuberculosis Institutions.—The superintendent of the State Hospital for Tuberculosis, with Dr. M. Eugene Street, Glendon, R. Gordon, Greensboro, James E. Brooks, Montrose, and Richard H. Brooks, Raleigh, a committee of the directors of the institutions, are making a tour of the state tuberculosis institutions of the east.

Personal.—Dr. Thomas C. Quickel, Stanley, has located in Gastonia, where he will devote his attention to diseases of the eye, ear and throat.—Dr. Wingate Johnson, Thomasville, has located in Winston.—Dr. Alfred A. Kent, Lenoir, has received the unanimous nomination of the Democratic party of Caldwell County for representative to the legislature, and this nomination is said to be equivalent to election.

PENNSYLVANIA

Infantile Paralysis Situation.—Twenty cases of infantile paralysis were reported to the State Health Department, September 3. The disease now prevails in 41 counties, the total number of cases being at present 469.

Boards of Health Required.—It is stated that the State Commissioner of Health will send notice to all boroughs in Pennsylvania which have not organized boards of health and provided appropriation for combating disease, that they must do so without delay. This action of the commissioner will affect boroughs in every county. In case of failure to comply with this decree, the commissioner will invoke the aid of the attorney-general either by mandamus proceedings to compel the organization of board or action for revocation of charter.

Philadelphia

Personal.—Dr. Caroline M. Purnell sailed for Europe August 31.—Dr. John J. Moylan returned from Europe August 28.—Dr. Edward H. Jerecki, chief of staff at the Jewish Hospital, was badly shaken up and bruised, in a collision between his carriage and a trolley car, August 29.

Resignations from the University Faculty.—Dr. Harold B. Wood, assistant demonstrator of normal histology at the University of Pennsylvania, has resigned to become state bacteriologist and chief of the laboratories of the Mississippi State Board of Health. He will be stationed at Jackson.—Dr. Horatio C. Wood, Jr., assistant professor of pharmacology in the university, has resigned.

Special Train for State Meeting.—For those desiring to attend the annual meeting of the State Medical Society at Pittsburg, October 3 to 6, a special train will leave Broad Street Station at 10:30, Monday morning, October 3, stopping at Harrisburg, Tyrone, Altoona, Johnstown, and East Liberty. A uniform rate of two cents a mile will be charged on this train, Pullman service being extra. The train will run as the second section of the Chicago Express. Accommodation can be had by writing Dr. Albert M. Eaton, 2017 N. 13th Street, Philadelphia, Chairman of the Committee on Transportation, enclosing a stamped, directed return envelope.

Railroad Blamed for Poor Milk.—A bill of complaint against the Philadelphia and Reading Railway, in which the transportation company is held responsible for the alleged inferior grade of milk that has been supplied in certain sections of the city, was filed in Harrisburg, September 3. It is expected that the state railroad commissioners will institute a searching investigation into the manner in which railroads transport milk. The specific charge is that it required the defendant company three hours to convey the milk a distance of 35 miles in common baggage cars. Twenty thousand quarts of milk are supplied in this city daily by the Reading system.

Dedication of Consumptive Institute.—The dedication exercises of the Jewish Consumptive Institute, 406 Wharton Street, will continue for a week beginning September 11. All the Jewish organizations will be represented and addresses

will be made by the following: Dr. S. Solis-Cohen, Rabbi A. H. Erschler, Rabbi B. L. Levinthal, and Dr. M. Barbour. Dr. M. Staller is chairman of the dedication committee. In the new institution, no patients will be housed in the building, the advanced cases being turned over to sanatoriums at the expense of the institution. A dispensary will be established for incipient cases and for the distribution of milk and eggs. A large sun parlor has been constructed in the yard.

GENERAL NEWS

Electrotherapeutists to Meet.—The American Electrotherapeutic Association will hold its twentieth annual meeting at Saratoga Springs, N. Y., September 13 to 15.

Measles Epidemic in South Africa.—An epidemic of measles is reported in Pretoria. Up to the present, the inhabitants of 300 houses have been infected, and in all about 1,000 cases have been reported. The schools are being closely watched but the health officials believe that the epidemic is sufficiently under control to obviate the necessity of closing them.

Cancer Vaccine Tested.—Dr. Philip K. Gilman, formerly of Oakland, Cal., professor of surgery in the Philippine Medical School and surgeon in chief of the Philippine General Hospital, Manila, announces his belief that he has discovered a vaccine which will stop the ravages of cancer. He reports apparent cure with the vaccine in twenty cases of cancer in Manila.

Pacific Coast Surgeons Meet.—The annual meeting of the Pacific Coast Association of Railway Surgeons was held in San Francisco, August 27 and 28 and the following officers were elected: President, Dr. Oliver D. Hamlin, Oakland; vice presidents, Drs. Wallace I. Terry, San Francisco, and Robert T. Legge, McCloud, Cal.; secretary, Dr. George R. Carson, San Francisco (re-elected); treasurer, Dr. Ernest M. Keys, Alameda. The association will hold its 1911 meeting in Los Angeles, the day before the meeting of the American Medical Association.

Colored Practitioners Hold Meeting.—Colored physicians, dentists and pharmacists, making up the National Medical Association, held their meeting in Washington, D. C., August 23 to 25. Hampton Institute, Hampton, Va., was named for the next meeting-place and the following officers were elected: President, Dr. Austin M. Curtis, Washington, D. C.; vice presidents, Drs. William M. Slowe, Philadelphia, and D. L. H. Singleton, Washington, D. C.; general secretary, Dr. J. A. Kenny of the Tuskegee Institute, Ala., and member of the executive board, Dr. John W. Jones, Winston Salem, N. C.

The Valmora Sanatorium.—The Valmora Industrial Sanatorium at Watrous, New Mexico, an institution incorporated not for profit, announces that it is ready to receive patients. The expense per week for patients sent by subscribers will be \$10 and for others \$12.50. Individuals desiring to enter the sanatorium should write to the office, 34 Washington Street, Chicago, for application blanks, which should be filled out by their physicians and then presented to one of the examiners of the sanatorium who will determine whether or not the case is suitable for treatment at the institution. As the chief object is to accomplish the greatest possible good at the sanatorium, patients who have not a fair chance for recovery are not accepted. The examiners in Chicago for the institution are Dr. Arthur M. Corwin, 34 Washington Street, and Dr. Edwin B. Tuteur, 103 State Street.

Coming State and National Meetings.—A large number of state and national medical societies are to meet this fall. Among them are the following which will meet in September or October:

Amer. Acad. of Ophthalm. and Oto-Laryn., Cincinnati, Sept. 19-21.
Amer. Assn. of Obstetricians and Gynecol., Syracuse, Sept. 20-22.
Amer. Roentgen Ray Association, Detroit, September 28—October 1.
American Association of Railway Surgeons, Chicago, October 10-21.
American Electro-Therapeutic Assn., Saratoga, N. Y., Sept. 13-15.
Medical Association of the Southwest, Wichita, Kan., October 11-12.
Michigan State Medical Society, Bay City, September 28-29.
Minnesota State Medical Association, Minneapolis, October 6-7.
Mississippi Valley Medical Association, Detroit, September 13-15.
Nevada State Medical Association, Lake Tahoe, Cal., Sept. 19-21.
Pennsylvania Medical Society of State of, Pittsburg, October 3-6.
Utah State Medical Association, Salt Lake City, October 3-4.
Vermont State Medical Society, St. Albans, October 13-14.
Virginia, Medical Society of, Norfolk, October 25-28.
Wyoming State Medical Society, Casper, September 27.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, P. I., July 31, 1910.

Obstetric Superstitions in the Philippines

Since so widespread an interest, both professional and lay, in the very high infant mortality in Manila and in the Philippines generally has been aroused, it is not surprising that there should follow an inquiry into the status of the practice of obstetrics and midwifery in the Islands. Such a study has been made by a number of Manila physicians interested in obstetrics. As might be expected, some interesting facts, situations and customs were encountered.

Seven articles dealing with different phases of obstetrics and gynecology are published in the *Bulletin of the Manila Medical Society* for June, 1910. It is rather surprising to learn that in both surgery and obstetrics it is particularly easy to avoid infection. The explanation of this is the rarity of the virulent streptococci. This organism is seldom encountered in laboratory work, in the morgues or in clinical work. "Streptococcic septicemia, cellulitis, erysipelas, scarlet fever and even streptococcic sore throat are extremely rare conditions in the Philippine Islands and streptococcic metritis and peritonitis following childbirth have not been encountered in autopsy work in Manila." Yet in spite of these conditions the death-rate among infants and of mothers during or following labor is very high.

In this connection it must be remembered that rational medicine is only a recent institution in the Philippines. Until the early seventies the practice of medicine was almost entirely in the hands of the quack and until very recent years the same has held true with regard to obstetrics, even among the majority of the more wealthy families. It is said that "to the Filipina woman, like the Chinese woman, personal exposure is so repulsive that often she will not accede to it even when in labor. Such scruples and shyness, caused perhaps by a misunderstanding, very often lead Filipina mothers to refuse the services of physicians and to repose their confidence in quack midwives." This is one of the principal reasons given for the almost primitive condition of obstetrical practice in the Islands. Whatever the causes of the vicious practices of the midwives, certainly the results are most lamentable and are to be seen on the streets of Manila or any of the provincial towns every day. Moreover, in Manila "the never-ending procession of women suffering from misplacements, prolapses of all degrees, lacerations of every conceivable class and severity, endometritis, fistulas, chronic congestions and inflammations, vesical troubles and general debilities is a common sight to the clinician."

It is easy to understand these conditions, as well as the fact that Filipina women become prematurely old, when one becomes aware of the obstetrical customs obtaining in the Philippines. Dr. Rebecca Parish has made a study of these customs and they are even more appalling than had been expected. Among many of the customs the following may be mentioned: If any one stands in the door in the presence of a pregnant woman, it is a sure sign that at the time of her labor the child will also stop at the door of the uterus. The prospective mother must not step over the tether of a pony while out walking as a difficult labor will result. Very tight belts and strings, worn about the waist during pregnancy, will insure an easy delivery and also prevent the child's growing too large. Many times the woman is forced to engage in the most arduous exercise, a favorite one being grinding rice; this causes an easy delivery, and is certainly effectual as the babe is sometimes born at the mill. During the course of even a normal pregnancy it is necessary for the midwife to make frequent examinations and, if she sees proper, to "change the position;" this she calls "placing the baby" and she receives 10 centavos (equal to 5 cents U. S. coin) for each such service. As a rule the Filipina woman is very indefinite as to the time when her pregnancy will terminate and consequently rarely is she prepared for this event. However, very little preparation is required except the midwife who is considered quite sufficient for her needs, and in many instances the patient cannot afford this luxury. In some provinces it is said that men act as assistants and are better for this purpose, as they are stronger and can apply more force in kneading, pressing, squeezing, pulling and pushing, as all these operations are considered essential. Short stout clubs, made of wood or burned clay and sold in the public markets, are used a great deal for pressing, pushing and kneading and are considered much more effectual for the purpose than is the hand. The waist is tied about tightly during labor to make sure that the child passes downward

instead of upward. The placenta with a paper and pen buried under the house will insure a bright and intelligent child. It is said that soup made from small pieces of the placenta and given to the mother as her first postpartum nourishment prevents fever, weakness and other forms of illness. The mother is given large quantities of rice and urged to eat so that the abdomen will be filled, as it was so large before. The waist is tied after labor to prevent the abdomen filling full of wind when the patient breathes deeply and also to prevent the blood from coming up and out of the mouth. The bones of the sacro-iliac joint are separated during labor, therefore a strong band is placed about the hips and tied tightly by two men, one bracing himself on either side with his feet against the patient's body.

The patient's abdomen is rubbed with oil for 25 days so the uterine will become soft and send out the blood, thereby becoming small. Hemorrhage is encouraged by propping the patient up with pillows—this also prevents the uterus going high in the abdomen, and causes the bad blood, which must be gotten rid of, to drain better. Frequently the patient is almost exsanguinated, and death from hemorrhage may occur without any effort being made to stop the bleeding. Sleep is not allowed because it produces a tendency to insanity; frequently the patients are allowed to sit up and even to stand within a day or two after delivery. After-pains are greatly helped by the patient getting the odor of burning deer-skin. After three days the procedure of "replacing the uterus" takes place. For 9 days it is thought bad to eat salt or drink cold water. About the tenth day the woman is bathed with a little warm water and smoked underneath a mat enclosing her and a jar of burning leaves. Following this, since there is a suspicion that the uterus is still raw, a fire is made of charcoal in a large earthen pot and the patient stands astride this, surrounded by blankets and supported by her friends. It requires an hour of this treatment to cause the uterus to "dry up." For three months the woman should not put her hand in cold water, drink cold water or take a cold bath. This rule evidently does not apply to laundresses whose occupation calls them to the river or the spring. No anti-septic precautions are known; old rags, old clothing and the family bedding are used about the parturient.

Perhaps the most prevalent and terrifying of all the superstitions is concerning the "Aswang," an imaginary being, half man and half beast. This creature prowls around at night and is the terror of the patient and all her relatives, because he watches to get the blood of the patient and to steal the child. As he lives both in the air and on the land and is guided in his night depredations by a bat, it is next to impossible to feel free from him at any time. During the latter months of pregnancy it is necessary for the woman to sleep under a black cover so that the "Aswang" cannot see her; and frequently there is a fire kept burning under the house so that the smoke may keep him away. It is considered exceedingly dangerous to be out after dark, and if the woman does go out at this time it is necessary to wear the hair loose down the back, which is her protection against the "Aswang" influencing her child and causing him also to be an "Aswang."

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 26, 1910.

Measures Adopted in France Against Cholera in Italy

The now official news of the appearance of cholera in several localities in the Italian provinces of Bari and of Foggia in the region of Apulia, where the scourge seems to have been introduced by a band of Russian pilgrims from Odessa, has naturally aroused much excitement, not only throughout Italy but also in the neighboring countries. In France, M. Briand, the prime minister, immediately telegraphed to the prefects to apply to intercourse with the infected portions of Italy the provisions of the recent decree in regard to the cholera epidemic in Russia. These provisions include surveillance over travelers at the frontier stations; isolation of persons suffering from suspected ailments; reports from hotelkeepers and others of travelers who arrived from the infected regions; reports to the mayors of every case of suspicious disease, and the designation for each department of a delegate charged with directing the application of prophylactic measures, and the prohibition of the importation of objects or products such as clothing, rags, fruits or vegetables from affected regions. All the French ports have been warned to cause all vessels coming from infected regions to undergo the measures required by the maritime sanitary police. At the moment that I write, I learn that the Swiss

orary year"—a mark of special esteem—and he died just on the eve of his final resignation. He was director of the Rothschild (Jewish) Hospital, and also head of the internal department of the General Poliklinik. In both these positions, he had gained the esteem and love of patients and students and his classes were very much frequented by foreign doctors, too. He was a recognized leader as a specialist on the diseases of the alimentary canal. His most famous books were "The Mechanical Treatment of Diseases of the Stomach and Intestines," "The Neuroses of the Stomach," "Atonia Gastrica," and a treatise on the pancreas, which is a standard work on this subject. He was a gifted and keen observer of symptoms, an exceedingly exact and scientific investigator, who did not publish much because of his long and painstaking investigations, but each of whose words stood every test. He had reached about the utmost honors a physician can attain in this country: He was imperial councillor and president of the board of health. It need not be said that his private practice was one of the best in this country.

Marriages

GEORGE BLAINE CROW, M.D., U. S. Navy, to Miss Ruth Bokenkamp, at Agana, Guam, May 26.

ALEXANDER C. FOSTER, M.D., to Miss Helen Vowells, both of Owensboro, Ky., at Louisville, August 11.

JOSEPH LINTON SILER, M.D., Philadelphia, to Miss Alice Lampe Gann of Jersey Shore, Pa., recently.

FANEUIL DUNKIN WEISSE, M.D., to Mrs. Mary Churchill Ripley, both of New York City, August 27.

COURTLAND LINDEN BOOTH, M.D., Portland, Ore., to Miss Juanita Clemm Snyder of Wheaton, Ill., August 24.

Deaths

Charles Benoni Hanson, M.D. University of Tennessee, Nashville, 1897; for six years superintendent and physician and surgeon-in-charge of the Monterey (Mexico) Hospital, an institution under the direction of the Board of Missions of the Methodist Episcopal Church, South; a member of the International Medical Association of Mexico; died in a sanitarium in San Antonio, Texas, August 10, from pellagra, aged 47.

Guy Carson Kinnaman, M.D. Rush Medical College, 1903; a member of the American Medical Association; fellow in surgery in Rush Medical College from 1903 to 1908; instructor in skin and venereal diseases in the Chicago Polyclinic, and clinical assistant and lecturer on diseases of the skin in Rush Medical College; died at the home of his parents in Ashland, Ohio, August 29, from ptomain poisoning, aged 32.

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Robert Amory, M.D. Harvard Medical School, 1866; of Boston; a member of the Massachusetts Medical Society; lecturer on physiology and the action of drugs in his alma mater, and later professor of physiology in Bowdoin Medical College, Brunswick, Maine; author of several works on physiology and therapeutics; died at his summer home in Nahant, Mass., August 27, aged 68.

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Stephen Milton Hand, M.D. Berkshire Medical College, Pittsfield, Mass., 1853; for twenty years health officer of Norwich, N. Y.; and at one time president of the Chenango County Medical Society; died suddenly August 9, from heart disease while making a professional call, aged 79.

Foster Frutchey, M.D. Medico-Chirurgical College of Philadelphia, 1891; a member of the Illinois State Medical Society; professor of operative surgery and applied anatomy in Illinois Medical College; died at his home in Chicago, August 28, from meningitis, aged 44.

Joseph Merritt Moore, M.D. Eclectic Medical College of the city of New York, 1881; a veteran of the Civil War; once

president of the state eclectic medical society; died at his home in West Rupert, Vt., August 17, from valvular heart disease, aged 74.

James E. Taylor, M.D. Cincinnati College of Medicine and Surgery, 1871; of Richmond, Ind.; a veteran of the Civil War; a practitioner for more than 50 years; died in a sanitarium in Spiceland, Ind., August 25, from heart disease, aged 75.

Henry Francis Murray, M.D. Tulane University of Louisiana, 1851; a veteran of the Mexican War; for 60 years a resident of the Choctaw and Chickasaw nations; died at the home of his son near Colbert, Okla., Dec. 29, 1909, aged 91.

Samuel Scott Salisbury, M.D. Western Reserve University, Cleveland, 1854; a member of the Illinois State Medical Society; for nearly half a century a practitioner of Tolono, Ill.; died at his home, August 22, from senile debility, aged 81.

Henry M. Pollard, M.D. Missouri Medical College, St. Louis, 1888; a member of the American Medical Association; for more than 20 years a practitioner of Shelbyville, Mo.; died in Kansas City, Mo., August 21, from myocarditis, aged 49.

Martha A. Richardson, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1896; of Canton, Ill.; a member of the American Medical Association; died in the Proctor Hospital, Peoria, Ill., August 25, from chronic nephritis, aged 39.

Paul Cheesebrough Skiff, M.D. Yale University, New Haven, 1853; of New Haven; a practitioner of New Haven for more than 40 years; died at his summer home in Kent, Conn., August 26, from cerebral hemorrhage, aged 81.

Robert W. Park, M.D. University of Pennsylvania, 1856; surgeon of the Fifth Alabama Infantry, C. S. A. during the Civil War; and for nearly 40 years a practitioner of Waco, Texas; died at his home, August 21, aged 74.

Oscar W. Oberlander, M.D. Syracuse (N. Y.) University, 1881; a member of the Medical Society of the State of New York and the Syracuse Academy of Medicine; died in Ogdensburg, N. Y., June 25, from general paresis.

Harland L. Stanbro, M.D. University of Buffalo, 1896; died at his home in Prattsburg, N. Y., August 9, from burns caused by the explosion of the gasoline tank of an automobile a week before in Wayland, aged 39.

William B. Presnell, M.D. Barnes Medical College, St. Louis, 1901; of Center, Okla.; died in that place, August 29, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, aged 39.

Darwin G. Palmer, M.D. Western Reserve University, Cleveland, 1879; a veteran of the Civil War; a member of the American Medical Association; died at his home in Geneva, Ohio, August 27, aged 68.

Joseph J. Tremblay, M.D. College of Physicians and Surgeons, Chicago, 1895; a member of the American Medical Association; died suddenly at his home in Moline, Ill., August 23, from heart disease, aged 48.

David Howard Cronyn, M.D. Long Island College Hospital, Brooklyn, 1873; a veteran of the Civil War; coroner of Brown county, S. D.; died at his home near Houghton, August 21, from arteriosclerosis, aged 66.

Joseph Dennis Willson, M.D. Cooper Medical College, San Francisco, 1873; for more than 50 years a practitioner of California; died at his home in Cloyne Court, Berkeley, August 25, from nephritis, aged 80.

William Becker Stewart, M.D. University of Vermont, Burlington, 1904; formerly a member of the Vermont State Medical Society; died at his home in Unadilla, N. Y., August 21, from nephritis, aged 32.

Kimmel K. Harrison, M.D. Eclectic Medical Institute, Cincinnati, 1872; of Clayton, Mich.; died near his home in that place, August 24, from the effects of the kick of a horse, aged 75.

William H. C. Sterrett, M.D. Missouri Medical College, St. Louis, 1891; formerly of Corning, Mo.; died in Excelsior Springs, Mo., July 28, from the effects of a fall down stairs, aged 40.

Julius Stein, M.D. College of Physicians and Surgeons, New York City, 1885; died at his home in New York City, July 22, from fatty degeneration of the heart, aged 47.

Jacob Alexander Baker, M.D. Meharry Medical College, Nashville, 1903; formerly of Jacksonville, Fla.; died in Asheville, N. C., August 16, from tuberculosis, aged 33.

Nicholas Blackwell, M.D. Jefferson Medical College, 1860; surgeon in the Confederate service during the Civil War; died at his home in Bartlett, Tenn., August 16, aged 71.

Louis Phillippe Coyner (Years of practice, Va.) For twenty years a practitioner of Spring Creek; died at his home in Waynesboro, August 11, from diarrhea, aged 62.

Francis M. Carez, M.D. Paris, France; a veteran of the Mexican and Civil wars; died at his home in Fort Scott, Kan., July 9, from senile debility, aged 91.

Wilson Lumpkin Heflin, M.D. Medical College of Georgia, Augusta, 1851; died at his home in Roanoke, Ala., August 13, from cerebral hemorrhage, aged 82.

Isaac N. English, (license, Minn., 1896); for many years a practitioner of Motley; died in Brainerd, August 26, from carcinoma of the stomach, aged 59.

John Jacob Strecker, M.D. Columbus (Ohio) Medical College, 1880; died at the home of his son in Chattanooga, Tenn., August 6, from diabetes, aged 79.

William C. Stout, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1871; died at his home in Killbuck, Ohio, August 19, from paralysis.

Frederick Densmore Tyrrell, M.D. Bellevue Hospital Medical College, 1895; died at his home in Sacramento, Cal., August 5, from uremia, aged 39.

Robert Emery, M.D. Victoria College, Toronto, 1857; one of the oldest practitioners of Peoria, Ill.; died suddenly in Dunlap, Ill., August 24, aged 82.

Douglas C. Cannon, M.D. Bellevue Hospital Medical College, 1866; a Confederate veteran; died at his home in Norfolk, Va., August 21, aged 74.

Alfonso Wetmore, M.D. New York University, New York City, 1848; died at his home in Clinton, Iowa, August 24, from senile debility, aged 89.

Charles B. West, M.D. Jefferson Medical College, 1883; died suddenly at his home in Upper Strasburg, Pa., August 18, from heart disease, aged 52.

Hannah Tyler Wilcox, M.D. Homeopathic Medical College of Missouri, St. Louis, 1884; died at her home in St. Louis, Nov. 22, 1909, aged 71.

Otis A. Jakway, M.D. University of Buffalo, 1875; a veteran of the Civil War; died at his home in Breesport, N. Y., August 14, aged 76.

William Fleet Nelson, for 33 years a practitioner of Clay county, Mo.; died at his home in Liberty, Dec. 26, 1909, from rheumatism, aged 60.

William W. Easton, M.D. Bennett Medical College, Chicago, 1877; died at his home in Dowagiac, Mich., July 14, from paralysis, aged 56.

Chalon Guard Campbell, M.D. Washington University, St. Louis, 1875; died at his home in San Bernardino, Cal., August 22, aged 61.

Pharmacology

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION]

CAPTOL

W. A. Puckner and L. E. Warren

"Captol" is a hair tonic put on the American market by Mülhens & Kropff, New York City under the following claims:

"Captol is a newly invented chemical product of the Chemical Works, late Fr. Bayer & Co., Elberfeld."

"... the outcome of the joint condensation of tannin and chloral and possessing neither the unpleasant secondary effects of tannin nor the particular irritating action so frequently observed in the employment of chloral."

"The unrivalled hair tonic."

"A preventive of baldness."

"Contains: Not to exceed 70 per cent. alcohol, 4 grains chloral hydrate to the ounce, 3 grains Captol pure to the ounce."

Since, according to the circular, "Captol" is a condensation product of chloral and tannin the term "Captol" is evidently used by the manufacturer in two senses, viz., one intended to refer to the alleged chloral-tannin "synthetic" and the other meaning a solution of the "synthetic," together with other ingredients, in alcohol.

Several formulas for "Captol" hair tonics are found in pharmaceutical literature. As they are all similar, the fol-

orary year"—a mark of special esteem—and he died just on the eve of his final resignation. He was director of the Rothschild (Jewish) Hospital, and also head of the internal department of the General Poliklinik. In both these positions, he had gained the esteem and love of patients and students and his classes were very much frequented by foreign doctors, too. He was a recognized leader as a specialist on the diseases of the alimentary canal. His most famous books were "The Mechanical Treatment of Diseases of the Stomach and Intestines," "The Neuroses of the Stomach," "Atonia Gastrica" and a treatise on the pancreas, which is a standard work on this subject. He was a gifted and keen observer of symptoms, an exceedingly exact and scientific investigator, who did not publish much because of his long and painstaking investigations, but each of whose words stood every test. He had reached about the utmost honors a physician can attain in this country: He was imperial councillor and president of the board of health. It need not be said that his private practice was one of the best in this country.

Marriages

GEORGE BLAINE CROW, M.D., U. S. Navy, to Miss Ruth Bokenkamp, at Agana, Guam, May 26.

ALEXANDER C. FOSTER, M.D., to Miss Helen Vowells, both of Owensboro, Ky., at Louisville, August 11.

JOSEPH LINTON SINEE, M.D., Philadelphia, to Miss Alice Lampe Gann of Jersey Shore, Pa., recently.

FANEUIL DUNKIN WEISSE, M.D., to Mrs. Mary Churchill Ripley, both of New York City, August 27.

COURTLAND LINDEN BOOTH, M.D., Portland, Ore., to Miss Juanita Clemm Snyder of Wheaton, Ill., August 24.

Deaths

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PRONUNCIATION OF "DIPHTHERIA"

To the Editor:—What is the correct pronunciation of diphtheria. Is it *diff-theria* or *dip-theria*? F. E. S.

ANSWER.—Most authorities prefer the pronunciation *diff-theria*. *Dip-theria* is given as a second choice by several dictionaries: Century, Stormonth and Webster. The word is derived from the Greek *diphthera* (δίφθερα), a membrane; so that the pronunciation corresponds to the terminology.

PREPARATION OF SECTIONS FOR THE MICROSCOPE

To the Editor:—Please refer me to a late work on the preparation of specimens for the microtome and the technique for staining sections in pathologic work? V. L. MASS, Melrose, Mass.

ANSWER.—Mallory and Wright: *Pathologic Technique*, W. B. Saunders Co., Philadelphia. Lee: *The Microtome and its Vade-Mecum*, P. Blakiston's Son & Co., Philadelphia.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Aug. 27, 1910:

Norris, H. C. R., M. R. C., relieved from duty at Vancouver Barracks, Wash., and will proceed to his home, and on arrival there report by telegraph to the Adjutant General of the Army for further orders.

Sanford, Joseph L., M. R. C., granted 30 days' leave of absence. Hill, Felix R., Lieut., left Fort George Wright, Wash., en route to Wallace, Idaho, on detached duty.

Graham, George D., D. S., left Fort Leavenworth, Kan., on 10 days' leave of absence.

Maul, Louis M., col., will proceed from Chicago, to Fort Benjamin Harrison, Ind., for duty at Camp of Instruction.

Hall, James F., capt., in addition to his other duties, will take charge of the office of the chief surgeon, Dept. of the Lakes, Chicago.

Persons, Elbert E., major, will, at the proper time, join the 11th and 18th Cos. Coast Artillery in New York City, and proceed with those organizations to San Francisco, and on completion of this duty return to station. Major Persons is authorized to delay one month en route on returning.

Hess, Louis T., major, will proceed, at the proper time, to Fort Mott, N. J., for duty with the 42nd and 138th Cos. Coast Artillery, en route to San Francisco. Major Hess is authorized to delay 10 days en route in returning.

Reasoner, M. W., capt., left camp, American Lake, Wash., en route to Butte Falls, Ore., with troops to fight fire.

Griswold, W. Church, M. R. C., relieved from duty at Fort Oglethorpe, Ga., Oct. 1, 1910, and will proceed to Brooklyn, reporting on arrival to the Adjutant General of the Army. Lieutenant Griswold is relieved from active duty in the M. R. C., to take effect on the expiration of leave of absence granted him this date for 1 month and 15 days, to take effect on arrival at Brooklyn.

Manly, C. L., major, granted leave of absence for 2 months.

McIntyre, H. B., capt., relieved from duty at Army General Hospital, San Francisco, and ordered to Fort Caswell, N. C., for duty.

Sanford, Joseph L., M. R. C., relieved from duty at Fort Caswell, N. C., and ordered to Fort Ruger, H. T., for duty.

Hopwood, L. L., capt., relieved from duty at Army General Hospital, San Francisco, and ordered to Fort Monroe, Va., for duty.

Bartlett, Wm. K., capt., relieved from duty at Fort Totten, N. Y., and ordered to the Philippines Division for duty on transport sailing from San Francisco, Nov. 3, 1910.

Hefsehower, Roy C., Lieut., relieved from duty at Army Medical School, and ordered to Fort Hamilton, N. Y., for duty.

Gentry, Ernest R.; Thearle, Wm. H., Lieuts., relieved from duty at the Army Medical School and ordered to Fort Leavenworth, Kan., for duty.

Cooper, Alexander F., Lieut., relieved from duty at Army Medical School, and ordered to proceed to San Francisco, for assignment to duty at Army General Hospital, San Francisco.

Risdon, Herbert T., D. S., recently appointed, will proceed from San Francisco, to Fort Riley, Cal., for temporary duty.

Woodson, Thomas D., Lieut., reports arrival at Republic Wash., with Cos. B and C, 1st Inf., on detached service, left Camp, American Lake, Wash., Aug. 13, 1910.

Marshall, John S., E. D. S., admitted to Army General Hospital, San Francisco, for observation and treatment.

Patterson, R. F., D. S., left Fort Sheridan, Ill., en route to Fort Benjamin Harrison, Ind., on temporary duty.

Keller, William L., capt., left West Point, N. Y., with cadets on practice march.

Banister, William B., Lieut. col., left Camp Bruce E. McCoy, Sparta, Wis., on leave of absence.

Jenkins, F. E., M. R. C., left Camp of Instruction, Fort Riley, Kan., on leave of absence.

Bally, Howard H., capt., ordered to proceed to Fort Ancient, Ohio, for duty as inspector-instructor of the First Ohio Brigade Encampment, from Aug. 27 to Sept. 4, 1910.

Thearle, Wm. H., Lieut., granted 10 days' leave of absence about Sept. 1, 1910.

Crum, Wayne H., Lieut., ordered to accompany Co. A, Signal Corps, to Fort Benjamin Harrison, Ind., for duty at Camp of Instruction.

Bursey, Charles N., major, will report in person without delay to Brigadier General Wm. P. Hall, adjutant general, president Army Retraining Board, at Washington, D. C., for examination by the board.

Baker, David, major, leave of absence extended 20 days.

Bowman, M. H., M. R. C., ordered to Presidio of San Francisco, for temporary duty.

Flerson, Robert H., capt., left Vancouver Barracks, Wash., on detached duty, en route to Butte Falls, Ore.

Lynch, Edward C., M. R. C., reports for duty at Fort D. A. Russell, Wyo., Target and Maneuver Reservation, Wyo.

DeWitt, Wallace, major, left Fort Yellowstone, Wyo., on practice march with Troop E, 5th Cavalry.

Bisdon, H. T., D. S., reported for duty at Fort Riley, Cal.

Heterlek, R. H., M. R. C., left Fort Oglethorpe, Ga., en route to Key West, Barracks, Fla., on detached duty.

Changes for the week ended Sept. 3, 1910:

Hallett, Harley J., M. R. C., ordered to proceed to Fort Hamilton, N. Y., Aug. 29, for temporary duty.

Hill, Eben C., Lieut., ordered to proceed to Pine Camp, N. Y., for duty.

Matletta, S. U., M. R. C., left Fort Des Moines, Iowa, en route to Camp at Fort Benjamin Harrison, Ind.

Baker, Frank C., major, left Fort Moultrie, S. C., en route to Camp at Fort Benjamin Harrison, Ind.

O'Connor, R. P., major, left Fort Screven, Ga., en route to Camp at Fort Benjamin Harrison, Ind.

Shaw, Henry A., major, granted 20 days' leave of absence.

Nichols, Henry J., Lieut., on expiration of present leave of absence, will repair from duty in New York City to this city and report in person to Colonel Louis A. LaGarde, Medical Corps, president of the Army Medical School, for duty as assistant instructor in clinical microscopy and bacteriology at that school.

Wolfe, Edwin P., major, ordered to proceed from New York City to Philadelphia, on business connected with the Medical Department of the Army. Major Wolfe will also proceed from New York City to Middletown, Conn., on business connected with the Medical Department of the Army.

Howell, Park, capt., granted leave of absence for 2 months.

Norman, Seaton, M. R. C., ordered to proceed to Fort Huachuca, Ariz., for temporary duty.

Darnall, M. H., M. R. C., left Fort Washington, Md., on 10 days' leave of absence.

Long, Charles J., D. S., granted 2 months' leave of absence.

Kieruff, H. Newton, M. R. C., relieved from duty at Fort Missoula, Mont., and ordered to proceed to his home for further orders. Same date granted leave of absence for 1 month and 4 days.

Birmingham, Henry P., Lieut.-col., leave of absence extended 20 days.

Mabee, James I., capt., left Jefferson Barracks, Mo., on 8 days' leave of absence.

Long, Charles J., D. S., reports for temporary duty at Madison Barracks, N. Y., from Pine Camp, N. Y.

McGaw, W. D., Lieut.-col., left Washington, D. C., on 30 days' leave of absence.

Irland, M. W., major, left Washington, D. C., on 18 days' leave of absence.

Lynch, Charles, major; Bally, Howard H., capt., and DeLaney, M. A., capt., detailed to act as judges of the Inter-Coal Co. competition in the application of first aid to the injured, to be held Sept. 17, 1910, at Scranton, Pa.

Bundesen, H. N., M. R. C., granted 15 days' leave of absence.

LaGarde, Louis A., col.; McGaw, Walter D., Lieut.-col., and Winter, Francis A., major, appointed members of a board to meet in this city, Sept. 20, 1910, for the examination of such applicants for appointment in the Medical Corps as may be invited to appear before the board.

Talbot, E. M., capt., on return to Fort D. A. Russell, Wyo., will proceed to Fort Riley, Kan., for duty at camp of instruction in command of one-half of Co. A, Hospital Corps.

Tenney, Elmer S., M. R. C., relieved from duty at Fort Strong, Mass., and ordered to proceed to the Philippine Islands for duty on the transport sailing from San Francisco about Nov. 5, 1910.

Slater, Ernest F., M. R. C., granted 30 days' leave of absence.

Medical Corps, U. S. Navy

Changes for the week ended Aug. 27, 1910:

Fitts, H. B., medical inspector, ordered to the Naval Medical School Hospital, Washington, D. C., for treatment.

Downey, J. O., P. A. surgeon, commissioned passed assistant surgeon from Aug. 1, 1909.

Stratton, R. J., P. A. surgeon, commissioned passed assistant surgeon from Dec. 20, 1909.

Stendman, W. G., Jr.; Donelson, M., and Baker, M. C., P. A. surgeons, commissioned passed assistant surgeons from July 12, 1910.

Lays, J. F., surgeon, ordered to temporary duty in the bureau of medicine and surgery, Navy Department.

Higgins, M. E., asst.-surgeon, ordered to temporary duty at the Naval Medical School Hospital, Washington, D. C.

Dodge, A. H., asst.-surgeon, granted sick leave for 3 months when discharged from treatment at the Naval Hospital, Mare Island, Cal.

Cohn, I. F., P. A. surgeon, commissioned passed assistant surgeon from Feb. 28, 1910.

Fitts, H. B., medical inspector, ordered home to wait orders, when discharged from treatment at the naval medical hospital school, Washington, D. C.

Richardson, R. R., surgeon, ordered to duty at the Navy Yard, Portsmouth, N. H., and to additional duty in connection with the Southern, the Topeka, and the Naval Hospital at that place.

Valz, E. V., P. A. surgeon, detached from duty at the Navy Yard, Portsmouth, N. H., and ordered to duty at the Naval Prison at that place.

Iden, J. H., surgeon, commissioned surgeon from Oct. 31, 1909.

Seaman, W., surgeon, commissioned surgeon from Nov. 20, 1909.

Richardson, R. R., surgeon, commissioned surgeon, from Dec. 13, 1909.

Asserson, F. A., surgeon, commissioned surgeon, from Jan. 30, 1910.

Dunn, H. A., surgeon, commissioned surgeon from Feb. 5, 1910.

Stuart, A., surgeon, commissioned surgeon from Feb. 19, 1910.

Step, J., surgeon, commissioned surgeon from March 5, 1910.

Lee, A. E., P. A. surgeon, commissioned passed assistant surgeon from May 9, 1909.

The following named acting assistant surgeons are detached from duty at the places indicated and ordered to Washington, D. C., for examination for appointment as assistant surgeons: O. J. Miller,

changes take place in the blood during respiration? Where and how is it accomplished? 7. In a general way, of what does digestion consist? 8. What are enzymes and how do they act? 9. What is the function of the pancreatic juice? 10. What are the solid constituents of the urine and what conditions may change their quantity in health?

MATERIA MEDICA AND THERAPEUTICS (REGULAR)

1. Explain the action of heat and cold as therapeutic agents and mention indications for each. 2. Under what conditions would you advise arterial transfusion of blood? What advantage has the process over hypodermoclysis? What disadvantage? 3. Given a case of diphtheria in a child five years old. Describe in detail your treatment and the effect expected of the remedy. 4. When should silver nitrate and when should the organic salts of silver be used in the treatment of ophthalmia neonatorum? 5. Give some indications for the use of thyroid gland. What untoward effects are produced by over use? 6. Give some indications for the use of arsenic. In what forms may it be used? Give dose of each and symptoms resulting from its excessive use. 7. Outline a diet for a patient suffering with diabetes mellitus. Also for one suffering with chronic interstitial nephritis. 8. What would you use to overcome pleurisy with effusion? Explain action. 9. Explain the physiologic action of the salines. 10. For what conditions would you advise x-ray treatment? How long should the patient be exposed at a single sitting? When would you advise him to return for treatment if a series of treatments were advised?

MATERIA MEDICA AND THERAPEUTICS (HOMEOPATHIC)

1. Explain the action of heat and cold as therapeutic agents and mention indications for each. 2. Name the salient symptoms that would lead you to prescribe opium. In what doses would you prescribe it? Is a careful history of the case essential? How many alkaloids has opium? Name five. 3. In prescribing—what is the only true scientific basis for the selection of a drug? 4. Given—swelling and suppuration of glands; exostosis, curvature, caries, pale blotted face, ulceration of skin, swelling of nose and upper lip, scabs on hairy scalp, otorrhea—cancerous affection. Prescribe. 5. Give some indications for the use of thyroid gland. What untoward effects are produced by over use? 6. Diagnose dysentery and give the three most likely indicated remedies. 7. Given—a woman extremely pale, not emaciated, pulse rapid, 160, almost imperceptible at wrist, slow of comprehension, difficult respiration, coldness of extremities, finger nails blue, excessive hemorrhage from uterus, history of pregnancy negative, single—give the homeopathically indicated remedy. What would you do? 8. How would you treat a case of membranous croup? What germ is present? Name three remedial agencies that will probably be indicated during progress? 9. Differentiate calcarea carb and silicea. Rhus tox and lachesis. 10. For what conditions would you advise x-ray treatment? How long should the patient be exposed at a single sitting? When would you advise him to return for treatment if a series of treatments were advised?

MATERIA MEDICA AND THERAPEUTICS (ECLECTIC)

1. Explain the action of heat and cold as therapeutic agents and mention indications for each. 2. In what class of agents would you place passiflora? How would you prescribe it? What indications would guide you? 3. What are the properties of gelsemium? What are its indications and in what diseases is it useful? 4. Give dose and indications for use of apocynum. Name some conditions in which you would prescribe it. 5. Give some indications for the use of thyroid gland. What untoward effects are produced by over use? 6. Give indications for bryonia and diseases in which it is useful. 7. What uses would you make of phenol (carbolic acid) in practice? How use it? 8. Chionanthus—In what conditions is this agent useful? What are indications for it? 9. What is the formula of Dover's powder? What are its properties and uses? 10. For what conditions would you advise x-ray treatment? How long should the patient be exposed at a single sitting? When would you advise him to return for treatment if a series of treatments were advised?

Pennsylvania June Reports

The Medical Council of Pennsylvania reports the written examinations held at Philadelphia, Pittsburg and Harrisburg, June 21-24, 1910. The number of subjects examined in was 7; percentage required to pass, 75.

At the examination held by the State Medical Society of Pennsylvania, the total number of candidates examined was 347, of whom 308 passed and 39 failed. The following colleges were represented:

College.	PASSED.	Year.	Total No. Examined.
Illinois Medical College		(1909)	1
Rollance Medical College		(1909)	1
Chicago College of Medicine and Surgery		(1910)	4
College of Physicians and Surgeons, Baltimore		(1908)	5
University of Maryland		(1908) (4, 1910)	6
Johns Hopkins University		(1908) (1909) (4, 1910)	3
Baltimore Medical College		(1910)	1
Maryland Medical College		(1910)	1
University Medical College, Kansas City		(1910)	1
Columbia University, College of Physicians and		(1910)	1
Cleveland College of Physicians and Surgeons		(1910)	1
Starling-Ohio Medical College		(1907) (1909)	2
Surgeons			

Jefferson Medical College, (1880) (2, 1908) (2, 1909) (43, 1910)	48
University of Pennsylvania	80
..... (1900) (1905) (1908) (4, 1909) (73, 1910)	55
University of Pittsburg	12
Woman's Medical College of Pennsylvania	47
Medico-Chirurgical College, Philadelphia	27
Temple University	2
University of Nashville	1
Medical College of Virginia	1
University of Edinburgh, Scotland	1
University Lausanna, Switzerland	1

College.	FAILED.	Year Grad.	Per Cent.
Howard University, Washington, D. C.		(1907)	63.1, 68.
Chicago College of Medicine and Surgery		(1910)	71.4
Atlanta School of Medicine		(1910)	65.2
Kentucky University		(1906)	64.3
College of Physicians and Surgeons, Baltimore		(1910)	66.5
Maryland Medical College		(1910)	40.6, 58.7, 61.7, 63.4, 66.
University of Maryland		(1909) 65.1; (1910) 70.5, 70.8	
Baltimore University		(1905)	60.7
Baltimore Medical College		(1910)	66.6, 68.2, 69.2, 71.1
Ohio Medical University		(1905)	64.1
Medico-Chirurgical College, Philadelphia			
..... (1910)	57.8, 61.7, 66.6, 67.1, 70.2, 71.1, 71.8		
Temple University		(1910)	71.1, 72.7
University of Pittsburg		(1909) 70.2; (1910) 61.5, 68.9, 70.1, 70.3, 70.3.	
University of Pennsylvania		(1910)	65.8
Meharry Medical College		(1902)	51.5
University of Toronto, Ontario		(1905)	70.2

At the examination held by the Homeopathic Medical Society, the total number of candidates examined was 34 of whom 29 passed and 5 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Total No. Examined.
Atlantic Medical College		(1910)	2
University of Michigan, Homeopathic College		(1909)	1
Pulte Medical College		(1910)	1
Hahnemann Medical College and Hospital, Philadelphia		(1908) (2, 1909) (22, 1910)	25

College.	FAILED.	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Chicago		(1909)	63.5
Hahnemann Medical College and Hospital, Philadelphia		(1909) 61.8; (1910) 62.4, 65.2, 68.8	

At the examination held by the Eclectic Medical Society, the total number of candidates examined was 20 all of whom passed. The following colleges were represented:

College.	PASSED.	Year Grad.	Total No. Examined.
Georgia College of Eclectic Medicine and Surgery		(1910)	1
Bennet Medical College		(1910)	3
University of Louisville		(1910)	1
Atlantic Medical College		(1908) (2, 1910)	3
Maryland Medical College		(1905) (1906) (1909) (3, 1910)	6
Baltimore University		(1899) (1904)	2
Baltimore Medical College		(1910)	1
Eclectic Medical College, Cincinnati		(1910)	2
Medico-Chirurgical College, Philadelphia		(1910)	1

Medicolegal

Privilege and Waiver of Same Extend to Statements Made by Physicians.

The Supreme Court of Nebraska says, in Bryant vs. Modern Woodmen of America (125 N. W. R., 621), that the insured in his application waived for himself and his beneficiaries "the privilege or benefits of any and all laws which are now or may be hereafter in force making incompetent the testimony of or disqualifying any physician from testifying concerning any information obtained by him in a professional capacity." When, however, the testimony of a physician who had previously amputated the man's arm above the wrist was offered to show that he told the man at that time that he was suffering from tuberculosis of the wrist, the evidence was excluded on the ground that the communication from the physician to the patient was a privileged one, and had not been waived. But holding that it had not been waived was error.

A statement of fact or opinion expressed by a physician to a patient in the course of a professional visit, based on a

relation of facts by the patient, or on a physical examination by the physician, is as much a privileged communication as the facts or statements on which it is based. It is a part of the same transaction, and, if the statute excludes the facts disclosed by the patient, it must equally exclude the statements and the opinions, expressed or unexpressed, of the physician, if its protection is to be of any avail. If the physician is permitted to disclose what he said to the patient, the patient's privilege to prevent the disclosure of a communication by him to the physician or the result of an examination would be of little use; for by indirection a disclosure of the nature of the disease would in many instances be made.

A waiver of the privilege or benefit of the protecting statute is a waiver of the disqualification as to the whole transaction, and not as to a part of it only. And, in view of the statements in the application, if the evidence should prove that the insured had consulted reputable physicians as to his condition, and that he had been told by them that he was suffering from such an insidious and dangerous disease as tuberculosis at a time so near the time of making the application as to rebut and repel the idea of forgetfulness or good faith on his part, the concealment of such a fact, so material to the risk, and one that if known his application would have been rejected, would render void the contract. The offered evidence would tend to show notice and knowledge by the applicant of the actual facts as to his condition before he made the representations in his application. It was material to the issues, and since the privilege was waived, was admissible.

Limit to Responsibility of Employer Selecting Surgeon—Skill and Learning Required—Sufficiency of Fluoroscopic X-Ray Examination Without Making Photograph

The Supreme Court of Washington holds, in *Wells vs. Ferry-Baker Lumber Co.* (107 Pac. R. 869), that where an employer withholds \$1 per month from the wages of its employees, and pays same to a physician or surgeon selected by it, the implied duty of the employer is to select a competent physician and surgeon, and when it does so it discharges its full legal obligation. There being no express contract between the employer and its employees, and no profit resulting to the employer, it is a noncompensated or gratuitous trustee, and is liable only for a failure to use reasonable care in the selection of a competent surgeon.

A physician and surgeon by taking charge of a case impliedly represents that he possesses, and the law imposes on him the duty of possessing, reasonable skill and learning. He is not liable for mistakes if he uses the method recognized and approved by those reasonably skilled in the profession.

The plaintiff in this case, an employee of the defendant company, had a fall in which the bones of each wrist were broken, but alleged that the surgeon selected by the company negligently treated the left one for a sprain. The evidence disclosed that the surgeon at first expressed the opinion that both arms were broken, but said that he would examine them with the x-ray; that he did so, and then said that there was a fracture of the right wrist, but that the left was sprained; that he so treated them; that the right wrist was restored to its normal condition; that, on complaint from time to time that the left wrist was painful and not improving, he re-examined it with the x-ray at least three times; that each examination confirmed his later opinion that it was sprained and not broken; that he said to the plaintiff whenever he complained of the pain that a sprain was "worse" than a break. The x-ray examinations were what were termed "fluoroscopic," to make which, as it was explained, "You use an x-ray, but instead of taking a picture you have an apparatus that you hold in the hand and look through the arm." The only negligence claimed was that the attending surgeon failed to take an x-ray photograph so as to make certain his diagnosis.

The conclusion, the Supreme Court says, is irresistible, that the surgeon used reasonable diligence and skill, and that to permit a recovery of damages would establish the rule that

a surgeon is liable for a failure to use extraordinary care and diligence in both diagnosis and treatment. The surgeon who testified that an x-ray photograph should have been taken stated that he had practiced his profession for a period of 20 years, and that he had never had an x-ray machine. He examined the plaintiff for the first time about 17 months after the injury, and took x-ray photographs of the left wrist which he said showed a fracture which in his opinion a like investigation in the beginning would have revealed. Another surgeon said that the x-ray was used only as a matter of extreme care. Viewing the testimony in the light most favorable to the plaintiff, it clearly showed that the attending surgeon used reasonable care, skill and diligence in diagnosis and treatment. A verdict for the plaintiff could not be permitted to stand, and a judgment resting on it would be set aside.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

August 25

- 1 Report of the Scoliosis Department of the Children's Hospital, Boston. J. W. Sever, Boston.
- 2 Historical Notice of the Operation of Cesarean Section from the First Operation to the Middle of the Eighteenth Century. C. G. Cumston, Boston.
- 3 *Lactic Acid Bacteria: What They Are and What They Are Supposed to Do. A. I. Kendall, Boston.
- 4 Fracture of the Lower Epiphysis of the Tibia. A. O'Reilly, St. Louis.
- 5 *Hygienic and Dietetic Treatment of Delicate Children by the Class Method. W. R. P. Emerson, Boston.
- 6 Presence of Air in the Blood Vessels in Medicolegal Autopsies. G. L. West, Newton, Mass.

3 and 5. These articles also appear in the *Archives of Pediatrics*, August, 1910. For abstract of Dr. Emerson's paper, see abstract No. 57.

Medical Record, New York

August 27

- 7 Postoperative History of Eighteen Cases of Magnetic Foreign Bodies Removed from the Eye by the Haab or Giant Magnet. C. S. Bull, New York.
- 8 Importance of Early Recognition of Cancer. I. Levin, New York.
- 9 *Adaptation of the Human Saliva to Diet. L. B. Mendel, J. Chapman and A. F. Blood, New Haven, Conn.
- 10 *Chemistry of the Urine in Pulmonary Tuberculosis. R. W. King, Las Animas, Colo.
- 11 Simple Extraction of Cataract. J. S. Fernandez, Havana.
- 12 The Car Barn Bandits. A Study in Degeneracy. G. F. Lydston, Chicago.
- 13 Case of Sarcoma of the Adrenal Gland. J. A. Jackson, Indianapolis.
- 14 Anchoring the Kidney for Dislocation or Displacement. E. N. Liell, Jacksonville, Fla.
- 15 Two Cases of Actinomycosis. H. Jones, Circleville, O.

9. Adaptation of Human Saliva to Diet.—Mendel and his assistants detail experiments made by feeding persons with starchy substances to see whether there is any ground for the belief that diet will change the saliva, inducing adaptation to the diet furnished. There are a large number of variable factors aside from diet that affect the activity of the saliva. The author made use of Wohlgemuth's method of testing the concentration of amylose in the saliva. Individuals were treated for a period of from 7 to 10 days with a mixed diet; then without any starches for a second period, and later with carbohydrates alone. The results obtained would go to show that there is no adaptation of the saliva to the diet selected. In two vegetarians it was found that the saliva was no more active than in other normal individuals.

10. Chemistry of Urine in Pulmonary Tuberculosis.—It is claimed by King, who has done some original work in this line, that the urine would show wasting and an imperfect interchange of gases due to diseased lung tissue. Wasting should be shown by the urea excretion, and imperfect interchange by the elimination of the purin bodies. He tabulates the results in 52 cases, 43 of which represented various stages in patients who were able to be out of bed, the others being

bed cases. If the patient is near a fatal termination the urine will measure between 600 and 800 cc.; it will have a decided red color from pigments of blood cells that are being destroyed; it will show a urea reaction that is more than 4.00, and the urinometer reading will be between 20 and 25. Specific gravity undergoes little change. Uric acid is not increased to any great degree. Tuberculosis produces a relative increase in the principal products of nitrogenous metabolism. If the volume of urine expressed in hundred c.c. be multiplied by the urinometer reading, we shall get a so-called V-G factor; if this be low it indicates that the patient is not taking sufficient nourishment to sustain the body in a state of health. The author introduces various new reactions that are explained in connection with the tables.

New York Medical Journal

August 27

- 16 Oral Prophylaxis. L. A. Faught, Philadelphia.
- 17 *Hypothyroidism. R. L. Pitfield, Philadelphia.
- 18 *Critical Analysis of 180 Cases of Acute Intraperitoneal Infection. E. MacD. Stanton, Schenectady, N. Y.
- 19 "Celestial" Surgery. J. Knott, Dublin, Ireland.
- 20 The Use of the Association Tests in the Study of Certain Types of Insanity. E. Gillespie, Binghamton, N. Y.
- 21 Atony of the Stomach (concluded). J. W. Weinstein, New York.
- 22 Diphtheria Bacillus-carriers. W. G. Bissell, Buffalo.
- 23 *Anemic Ulcers of the Throat. A. G. Pohly, New York.

17. **Hyperthyroidism.**—Hyperthyroidism, says Pitfield, may be so mild as to cause a few pains and aches, or so severe as to render the victim a bedridden, neurasthenic invalid; ugly, perhaps, and miserable; and often a complete puzzle for the medical attendant. Not always is the patient myxedematous. He or she may be so far advanced in the disease that the atrophic form obtains with emaciation and cachexia, so extreme that no subcuticle tissue, save bones and muscles, remain. Or the disease may be so slight that almost no skin changes are apparent, as in the cases reported by Pitfield. In fact, the patient may be rather fair to look on and yet have so many nervous symptoms as to be miserably ill, and in the eyes of many doctors a nervous, rheumatic crank.

Pitfield has seen in all nine cases in private practice. One patient was so myxedematous that she and her family preferred that she should not appear in public places, because she attracted the attention of nearly everybody by her hippopotamus gait. Two other patients were merely fat looking with puffy faces and swollen eyelids; one was a cachectic, prematurely old and withered-looking woman invalided for years, in whom there was but little suggestion of myxedema; two were comely, handsome women, one 35 and the other 53 years of age; another a thin, nervous little woman, a familiar type, with many ills and no myxedema. All had several things in common. All had had children. All had joint pains that were called rheumatism. The fat ones were all thought to have nephritis, the thin ones nervous prostration. And all without exception had had a galaxy of doctors who had misdiagnosed their ills.

Any woman approaching middle life or in the fourth decade, who has had a history of backache, an occipital headache, together with joint pains, dyspnea, asthenia, should be suspected of having hyperthyroidism, especially so if she has amenorrhea or had had it during the menstrual life. The treatment consists in the administration of thyroid extract.

18. **Peritoneal Infection.**—Analysis has convinced Stanton that the complete removal of the infection is the ideal procedure, and that removing the source of the infection and instituting a postoperative regime of peritoneal rest (Murphy's method) give almost ideal results in early cases of peritonitis. He failed to get good results, however, when he attempted to apply Murphy's method to patients with peritoneal infection of more than 40 hours' duration, though the most severe intermediate stage cases gave almost no worry at all when put on the Ochsner treatment. Once the peritoneum has become infected, Stanton believes that peritoneal rest is probably the most valuable single therapeutic means at command, and should be rigidly enforced whether one operates early or late.

23. **Anemic Ulcers of the Throat.**—Pohly believes that ulcers in the throat may be due to anemia or lowered vitality. He

has seen three cases, all in young women. The ulcer is round, small, with scanty secretion. There was no history of either tuberculosis or syphilis and no swelling of the glands.

Lancet-Clinic, Cincinnati

August 13

- 24 Significance of Rectal Hemorrhage. L. J. Krouse, Cincinnati.
 - 25 Diarrhea—A Symptom in Disorders of the Digestive Tract: Etiology, Diagnosis and Treatment. R. M. Rankin, Covington, Ky.
 - 26 Prophylactic and Therapeutic Importance of Powerful Cervical Muscles. I. O. Allen, Richmond, Ind.
- August 20
- 27 Angioneurotic Edema. W. E. List, Cincinnati.
 - 28 Mode of Action of Mineral Waters Employed Internally. G. A. Persson, Mount Clemens, Mich.

University of Pennsylvania Medical Bulletin, Philadelphia

July-August

- 29 *Are Tubercle Bacilli Excreted Through the Bile? L. H. Maxson, Philadelphia.
- 30 *Ascending Infection of the Kidney Carried Out by the Method of Transplanting the Ureters Into the Intestines. L. F. Stewart, Philadelphia.
- 31 Pathogenesis of Tabes: Its Relation to the Biochemistry of Syphilis. W. E. Munroe, Philadelphia.
- 32 Practicability of the Meltzer-Auer Method of Continuous Intratracheal Insufflation. L. H. Landon, Philadelphia.
- 33 *Therapeutic Value of the Extract of Human Corpus Luteum. C. B. Maltz, Philadelphia.
- 34 *Febrile Mania of Unusually Long Duration Ending in Recovery. D. Riesman, Philadelphia.
- 35 Infection of a Stillborn Infant by an Amebiform Protozoan (*Entamoeba mortinatalium*). A. J. Smith and F. D. Weidman, Philadelphia.

29. **Tubercle Bacilli Excreted Through Bile.**—Maxson's observation points strongly to the fact that while the circulation of tubercle bacilli in the blood and their excretion in the bile is not proved, the evidence is sufficiently strong to make it very probable.

30. **Ascending Infection of the Kidney.**—In order to study the question of ascending infection of the kidney, Stewart concluded that it would be necessary to place uretero-intestinal implantation on a more firm basis. Formalin-hardened arteries suggested a way of doing this. The object was to have the arteries preserve the patency of the ureters and provide a way of making a more perfect anastomosis, which would lessen the possibilities of peritonitis. The preparation of these arteries was made by placing the carotid arteries of dogs in a formalin solution for 48 hours, after which time they were sufficiently hard to remain patent under pressure. Following this they were placed in olive oil and sterilized in an autoclave. Several experiments were performed to find out the result of passing these arteries diagonally through the intestinal wall. Autopsy in these cases showed that in about 2 weeks the arteries disintegrated and began to pass into the intestinal canal, leaving behind a rigid channel lined with fibrous tissue, the fibrous tissue formation probably being stimulated by the formalin remaining in the arteries. The following operation was first devised. The ureter was cut anywhere between the bladder and 3 inches from the kidney and an artery 2 inches long was inserted in it so that one-half was left uncovered. The uncovered portion of the artery was passed into the intestinal canal through an intermural channel from one-half to one inch in length, and the distal end of the ureter was sutured to the intestinal wall. The rigid artery containing ureter was covered by invaginating a portion of the intestinal wall and placing Lembert sutures; in this way the point of perforation of the intestine was covered and adhesions were permitted to form between the peritoneal surface of the intestine and the wall of the ureter. Thus the artery served to preserve the patency of the ureter at its point of attachment to the intestinal wall and to permit of a more perfect anastomosis with the intestine, in this way avoiding peritonitis. The object in making the intermural channel was to overcome the tendency to closure of the intestinal wound by muscular contraction, to place some distance between the end of the ureter, where it was attached to the peritoneal surface of the intestine, and the intestinal contents, and to have the urine empty in the direction of peristalsis and the fecal current. It was thought that these precautions would lessen the chances of ascending infection of the kidney. The above described operation with slight modifications was performed on 10 dogs. As a result

of his experiments, Stewart concludes that ascending infection of the kidney often takes place through either the lymph or the blood vessels of the ureter. When infection takes place in this way, it seems almost positive that the lymph vessels of the ureters are the carriers of the infection. It is probable that perinephritis is primary to the kidney involvement when infection of the lower urinary passages has caused perinephritis and kidney infection. The lumen of the ureter is less often a factor in ascending infection of the kidney than has previously been supposed.

33. Extract of Human Corpus Luteum.—In 9 cases Maits has used an extract of human corpus luteum made by Allen J. Smith in the University of Pennsylvania laboratories. He found that the extract of human corpus luteum possesses a distinct therapeutic action in osteomalacia, disturbances of the natural and artificial menopause and in hypofunction due to infantile uterus. In amenorrhea and in dysmenorrhea the treatment must at first be given each month. How long this must be continued before a permanent cure is effected and the injections can be omitted, Maits has not yet determined.

34. Febrile Mania of Unusually Long Duration.—Riesman's patient began to be troubled with insomnia, moodiness and causeless irritability of temper, which, however, did not attract attention at the time, being brought out only afterward in retrospect. Labor occurred on Jan. 4, 1909, and was entirely normal. On January 21, without any apparent cause, the patient began to have fever, which was thought to be due to a late puerperal sepsis; though this was, *a priori*, unlikely, as the confinement had been conducted with the greatest care by a skillful obstetrician. An enlarged spleen and a few suspicious rose spots on the abdomen seemed to warrant a diagnosis of typhoid. This probability was strengthened by two positive Widal reactions. A doubtful diazo reaction was also obtained. A slow pulse on several occasions when the temperature was high (82, for instance, with a temperature of 103) seemed also to favor the diagnosis of typhoid. On January 28, after 8 days of fever, the temperature fell by crisis, and the patient seemed to be perfectly well. She was, however, very much excited, did not cease talking of her speedy recovery, and constantly acclaimed it as a wonderful miracle. On the day following the fall in temperature, toward evening, she was unusually quiet, and as this followed a day of much mental exaltation a close watch was kept on her. Suddenly the patient began to scream and throw herself about so that it was necessary to hold her in bed. The eyes were wild and staring, and there was a white froth at the corners of the mouth. Coincidentally with the onset of the mania there was inaugurated a fever ranging from 99 to 104 F., which lasted practically without any intermission from January 30 to August 11, a total of 193 days. The pulse was variable. Despite the extraordinary duration of the fever, the urine remained almost unaffected, aside from being highly concentrated and loaded with urates. There was, barring a trace on one occasion, no albumin and no pus. Blood examination showed hemoglobin 90 per cent.; red blood cells, 3,200,000; white blood corpuscles, 1,000.

Several points present themselves for special consideration: First, the cause of the fever, lasting nearly 200 days. There was no evidence of tuberculosis; no signs of endocarditis, no enlargement of the spleen and no intercurrent temperature to indicate malaria, and the blood examination was negative. All those who saw the patient were of the opinion that she was suffering from some sort of toxemia. The nature of the infection remains unknown. Riesman thinks the case was one of infectious mania in which the mania is comparable to the delirium seen in acute forms of infectious diseases.

Virginia Medical Semi-Monthly, Richmond

August 12

- 36 Cardiac Surgery—Its Lost Opportunities, Slow Development and Present Status. E. M. Hasbrouck, Washington, D. C.
- 37 Hysteria in Its Relation to Gynecology and Obstetrics. G. F. Butler, Chicago.
- 38 Facial Erysipelas with Meningitis as a Sequel. J. N. Upshur, Richmond.
- 39 Indications for Trephining the Mastoid. W. A. Wells, Washington, D. C.

- 40 The Value of Exercise in Infancy. St. G. T. Grinnan, Richmond.
- 41 Placenta Previa—A Plea for the Mother. J. A. Owen, Turberville.

Memphis Medical Monthly

July

- 42 The Significance of Hematemesis. G. M. Niles, Atlanta, Ga.
- 43 Nasal Stenosis. B. S. Penn, Humboldt, Tenn.
- 44 Treatment of Fracture of the Long Bone. W. T. Black, Memphis.
- 45 Pityriasis Rosea. J. D. Hopper, Jackson, Tenn.
- 46 Present Day Serum and Vaccine Therapy. R. B. Underwood, Memphis.
- 47 The General Practitioner as a Specialist. P. M. Farrington, Memphis.

Archives of Pediatrics, New York

August

- 48 Value of Brudzinski's "Neck Sign" and of the Contralateral Reflex in the Diagnosis of Meningitis in Infancy and Childhood. J. L. Morse, Boston.
- 49 Comparison in Boys and Girls of Height, Weight, and Epiphyseal Development. T. M. Rotch, Boston.
- 50 Stomach Contents and Motility in Bottle-fed and Breast-fed Infants. H. Helman, New York.
- 51 Problems of Nutrition in Early Life. F. S. Meara, New York.
- 52 The Plantar Reflex in Infancy and Childhood. E. C. Fleischner, San Francisco.
- 53 Therapeutic Use of Sea Water in Infants. R. M. Merrick, Boston.
- 54 Treatment of Enuresis by Re-education. C. Herrman, New York.
- 55 Finkelstein-Meyer Method of Infant Feeding by "Casein Milk." J. S. Leopold, New York.
- 56 Education of the Mother in Relation to Infant Mortality. E. B. Sterling, Baltimore.
- 57 Hygienic and Dietetic Treatment of Delicate Children by the Class Method. W. R. P. Emerson, Boston.
- 58 Lactic Acid Bactilli: What They are and What They are Supposed to Do. A. I. Kendall, Boston.
- 59 Tetanism. H. B. Sheffield, New York.

48, 50. Abstracted in THE JOURNAL, May 21, 1910, pp. 1710, 1712.

49. Abstracted in THE JOURNAL, June 4, 1910, p. 1889.

54. Treatment of Enuresis by Re-Education.—Applying the so-called method of conscious repetition of Brissaud to the treatment of involuntary micturition, Herrman has had the patient urinate at regular stated times, but every time he urinates he is directed to void a little, say 2 drams, and then stop; then void 2 drams more and stop, and so on, until the bladder is emptied. In this way the individual exercises the mechanism which controls urination; he trains and educates himself in the voluntary execution of the act. After this has been done two or three times under the direction of the physician the patient can carry it out himself.

56. Education of the Mother in Relation to Infant Mortality.—Sterling conducted an investigation of the experiences of a number of women whose special training in matters of health was definitely known. A set of questions, covering the occupation before marriage, the number of children, manner of birth, infant feeding, etc., were sent to 105 married graduates or former students of a successful normal school of physical education. Each of these women had spent one, two or three years at the school, where rational physical exercise, personal hygiene, and right habits of living were emphasized. Ninety-one replies were received and form the basis of this paper. The investigation covers a period of nearly 17 years, the first baby of the series being born in September, 1893. Of the 91 marriages 25 have been sterile to date. Of the 66 mothers, 56 were occupied in teaching for periods varying from 3 months to 12 years. In obtaining an average it was necessary to eliminate 10 of these, because their answers were too indefinite to show exactly how long they were thus occupied. The average length of time of the 46 who gave definite replies was nearly 3½ years. In the 66 fertile marriages, 112 pregnancies have occurred, the number per marriage ranging from 1 to 4. There are living to-day, at the end of almost 17 years, 100 children. This gives a total death-rate from all causes of 10.7 per cent.; 6 of the pregnancies resulted disastrously through abortions, premature birth, or birth causes at full term. In the series of 106 children surviving the ordeal of birth, practically 70 per cent. were breast-fed for periods varying from 1 month to 12 months, though in many instances artificial feeding was used as an aid to the breast; 77 per cent. of the mothers were able to nurse one or more children for one or more months. Of the 6 who died, 2 were nursed one or more months, and 4 were not nursed. Of the nurslings

who succumbed, 1 died of meningitis at 2 years of age and 1 of strangulation at 4 months. Of the 112 pregnancies, 75 resulted in normal or spontaneous births, 34 were not normal, and in 3 no report was made on this point. The death-rate among the children of these marriages is lower than that given for the registration area of the United States, which is about 14.5 per cent. Eliminating the so-called "unavoidable causes" connected with birth, the death-rate is markedly lower. The percentage of premature births is scarcely more than one-quarter that noted by Ballantyne in maternity hospitals. Abortions occur about one-quarter as frequently as in most series of cases. In the school which these young women attended subjects pertaining to health were of paramount importance. Sterling does not think that hygiene will ever become vital to the young women of the land until the academic councils of the various schools make as ample provision for such a course as they do for mathematics, or languages, or literature. Students will not take seriously a subject which the governing boards neglect.

57. **Treatment of Delicate Children by Class Method.**—Emerson is convinced that the class method is particularly well adapted to the proper treatment of delicate children. The spirit of competition, the "game" in it, has a powerful attraction to the child, aiding greatly in his management and control. The steady gain in weight in children following directions furnishes a strong incentive to the parents and the children alike. The class method makes the necessary instruction of the parents easy and effective. The results obtained each week remove prejudices and fears and convince in a moment, as if by magic, where hours spent in arguments fail. In the giving of instructions and directions to the parents and the children assembled together there is an enormous saving of time. The class method furnishes the best training school for the social worker. She can here learn what instructions are to be carried out; what the object sought. She catches the spirit of the work and is enabled to relieve the physician of a large mass of detail for which he has neither the time nor the energy to perform, and for which the social worker is the one person especially qualified by sex and training to carry out.

Long Island Medical Journal, Brooklyn

August

- 60 The Associated Physicians of Long Island. J. C. Hancock, Brooklyn.
- 61 Preventive Medicine from a Chemical Standpoint. H. W. Wiley, Washington, D. C.

Medical Herald, St. Joseph, Mo.

August

- 62 The Non-Operative Treatment of Tuberculous Arthritis. H. W. Orr, Lincoln.
- 63 Certain Facts in Ophthalmology of Practical Importance to the General Practitioner in His Daily Practice. J. M. Banister, Omaha.
- 64 Should the Operation for Ruptured Tubal Pregnancy be Immediate or Deferred—Personal Experiences and Deductions. J. E. Summers, Omaha.
- 65 The Rapid and Complete Cure of Gonorrhea. T. M. Paul, St. Joseph.

Therapeutic Gazette, Detroit

August

- 66 *Calomel to Increase Elimination in Pregnancy. S. Coles, Philadelphia.
- 67 Actions and Uses of Salicylic Acid and its Preparations, Especially in Rheumatism. B. N. Ghosh, Calcutta, India.
- 68 Carbon-Dioxid Snow in Certain Cutaneous Diseases. H. W. Stelwagon, Philadelphia.
- 69 Vulvitis, Vaginitis, and Vulvovaginitis of Children. F. H. Maier, Philadelphia.

66. **Calomel to Increase Elimination in Pregnancy.**—The eliminative action of calomel is best obtained by giving from 1/20 to 1/10 grain 3 times a day, which course can be safely continued throughout pregnancy, says Coles, by omitting it for 3 or 4 days every 2 weeks. To get the best results from these small doses, the calomel should be well triturated with bicarbonate of soda, which increases its action and lessens the danger of salivation. For the past 12 years Coles has made this method of administration a routine treatment in all pregnant women in whom elimination was deficient, as indicated by headache, slight disturbance of the digestion, and diminution of solids and urea excreted in the urine. Usually

in less than a week after beginning this treatment these symptoms will disappear, and the urea and solids become normal. Then the patient is instructed to discontinue the powders or tablets until she again feels the need of them.

Journal of the Minnesota State Medical Association and Northwestern Lancet, Minneapolis

August 15

- 70 Uses of Morbidity Reports. H. W. Hill, Minneapolis.
- 71 *Probable Spinal-Cord Lesions Following the Pasteur Treatment. W. A. Jones, Minneapolis.
- 72 Arteriosclerosis in the Nervous System: Special Reference to Apoplexy. A. S. Hamilton, Minneapolis.
- 73 What is a Predisposition to Inguinal Hernia? J. E. Moore, Minneapolis.

71. Published in full in THE JOURNAL, Nov. 13, 1909, p. 1626.

Chicago Medical Recorder

August

- 74 *Retroflexion and Retroversion of the Incarcerated Gravid Uterus. H. M. Stowe, Chicago.
- 75 *Cure of Varicose Veins by Intravenous Injections. W. F. Bernart, Chicago.
- 76 Robert Koch (1843-1910). P. Ehrlich, Frankfurt on the Main, Germany.
- 77 *What the Mayor and City Council Can do in the Prevention of Typhoid. L. L. Lumsden, U. S. P. H. and M.-H. S.

74. **The Incarcerated Gravid Uterus.**—In Stowe's case the urethral orifice was drawn upward behind the pubic bone so that the catheter was used with difficulty. The posterior vaginal wall was displaced anteriorly, the canal assuming the form of a crescent with its convexity forward. Douglas' pouch was filled with a hard, resistant mass which was slightly movable—the uterine fundus. The cervix lay behind the pubis and was firmly compressed against the bone. The sharp flexion between it and the fundus was easily made out. The anus was swollen and the anterior rectal wall greatly stretched. The rectum was empty. The bladder was palpable at a level of 5 cm. above the umbilicus. It was very tender to pressure. An attempt was made to pass the catheter without narcosis but it failed. Under anesthesia, a soft catheter was passed with great difficulty because of the traction on the urethra; 3 pints and 9 ounces of urine were finally withdrawn and the swelling in the abdomen immediately disappeared. After the urine had been removed, two fingers were passed in to raise the fundus above the promontory. This procedure failed. The patient was then held in the knee-chest position, the cervix secured with two strong volsellum forceps and the uterus forced into an oblique diameter and slowly—25 minutes—raised out of the true pelvis. An Albert Smith pessary was then introduced to maintain the organ in its natural position. A permanent soft rubber catheter was secured in the urethra to avoid further over-distention of the bladder, and this organ was irrigated with warm boric-acid solution every 3 hours. The catheter was removed in 36 hours. The bowels were moved by glycerin injections. The abdominal pain gradually subsided and the pulse fell to normal in 4 days. Hexamethylenamin was administered for several weeks as a urinary antiseptic. The further course of the pregnancy was undisturbed and the patient was delivered in due time. No complications were present.

75. **Cure of Varicose Veins by Intravenous Injections.**—If the injection of a corrosive solution, such as of mercuric chlorid, is directed against the endothelium of a vein instead of into the middle of the blood stream a complete and lasting occlusion of the vein can readily be accomplished. The irritation caused by the injection produces a hyperplasia of connective tissue cells, which encroach on the lumen of the vessel and ultimately obliterate it. Bernart has tried this treatment in three cases, with marked success in each one. The ultimate results in these are said to be equal to those of a radical operation. The technic of the procedure consists of applying a tourniquet some distance above the point to be injected so as to make the veins tense and firm. The site selected is washed with alcohol or ether and a 2-inch small gauged platinum needle is passed up to its shoulder into the lumen of the vessel. The tourniquet is then loosened and the solution is injected against the wall of the vein. While injecting, the needle is partially withdrawn so as to cover a wider area of the endothelium.

77. Also published in the *New Mexico Medical Journal*, August, 1910; see No. 131.

Journal of Nervous and Mental Disease

August

78. Three Pre-Frontal Tumors. F. X. Dercum, Philadelphia.
79. *Sarcomatosis of the Cervical Dura Suggesting Hypertrophic Cervical Pachymeningitis. F. X. Dercum, Philadelphia.
80. Laminectomy for Postsyphilitic Nerve Root Pain. F. H. Ray and S. I. Schwab, St. Louis.
81. *Radiculitis. F. W. Langdon, Cincinnati.
82. Kernig's Sign: Its Presence and Significance in General Paresis and Arterio-Capillary Fibrosis. S. Stern, Philadelphia.

79. Abstracted in THE JOURNAL, June 4, 1910, p. 1894.

81. Abstracted in THE JOURNAL, July 16, 1910, p. 249.

Journal Oklahoma State Medical Association, Muskogee

August

83. Modern Research—A Criticism and a Suggestion: With Special Reference to Typhoid. A. K. West, Oklahoma City.
84. Malaria, Atypical Forms. R. K. Pemberton, Kress.
85. Diagnosis and Treatment of Typhoid Perforation. J. H. White and I. B. Oldham, Muskogee.
86. *Local Anesthesia. L. F. Watson, Oklahoma City.

86. Local Anesthesia.—Watson holds that the strong solutions are equally or more dangerous than general anesthesia, while the weak solutions are the safest of all methods of analgesia. When local anesthesia is possible he prefers cocaine to ether or chloroform, because he believes it to be less dangerous, from observations on its use during the last 23 years in over 10,000 operations not only without a death but without any disturbance of the "equilibrium physiologic" of the patient. On the strength of the solution, he says, depends the rapidity, intensity and duration of the anesthesia. The technic of the injection is always delicate; it varies with each region, with each operation and in each patient. The technic must be learned with a knowledge of its application and adaptation to each individual case. Success in the use of local anesthesia depends on the patience, special training in the technic and an intimate knowledge of sensory nerve distribution. Because of the slower appearance of complete anesthesia with the weaker solutions, surgeons who begin operating as soon as the injection is finished will often fail with local anesthesia. Nerves, no matter how small, should never be handled previous to cocaineization; to do so will lessen the confidence of the patient in the method, cause unnecessary pain and a certain amount of shock. For a similar reason lacerated and contused wounds of the extremities should not be prepared for operation previous to cocaineization. Without the absolute confidence of the patient, work under local anesthesia will tax the patience of the most skillful surgeon; therefore, it is very important to always proceed slowly during the early stages of an operation under cocaine.

Watson considers the addition of adrenalin unnecessary to prevent poisoning when the weak solutions are used, besides it increases the tendency to secondary oozing of blood into the tissues. The point of the needle should always be in sight (intra-epidermal), otherwise an unnecessary amount of solution will be required to anesthetize the sensory nerve terminals. It is impossible to insert the needle too superficially. Local anesthesia can be employed in any part of the body where the nerve supply can be controlled. With a proper selection of cases, Watson asserts, the majority of surgical operations can be performed under local anesthesia. He recently had a case in which an infected wound of the foot was freely incised under vein anesthesia without the knowledge of the patient. A tourniquet was applied just above the knee and 15 c.c. of a 0.2 per cent. cocaine solution was injected into the external saphenous vein in the upper third of the leg. Anesthesia was complete in 30 minutes, extending as high as point of injection. Sensation reappeared as soon as the tourniquet was removed. No untoward symptoms were present at any time.

Vermont Medical Monthly, Burlington

August

87. Aphasia. W. L. Wasson, Waterbury.
88. Reflex Stomach Symptoms in Surgical Disease of the Gastro-Intestinal Tract. J. M. Gile, Hanover, N. H.
89. Technic of Using Forceps. J. R. Patton, Fairfield.
90. Hernia. W. J. Aldrich, St. Johnsbury.
91. Scarlet Fever. F. C. Angell, Randolph.

Dominion Medical Monthly, Toronto

August

92. The Old and the New Gynecology. H. C. Coe, New York.
93. Renal Calculus with Nephrectomy. W. W. Jones, Toronto.
94. Appendicitis in Children. I. Wood, Kingston, Ont.

Journal of Medical Research, Boston.

August

95. Antianaphylactic Vaccination. E. J. Banzhaf and E. Steinhardt, New York.
96. *Vaughan's Split Products and Unbroken Proteins: A Comparative Study of Their Effects. E. J. Banzhaf and E. Steinhardt, New York.
97. *Anaphylaxis and the Antibodies Concerned. J. F. Anderson and W. G. Frost, U. S. P. H. and M.-H. S.
98. *Typhus Exanthematicus (Tabardillo) in Mexico. E. F. McCampbell, Columbus, Ohio.
99. *Properties of Ascitic Fluid, Especially in Cancer. R. Weil, New York.
100. *Bacteriemic Theory of Tuberculosis. B. White and O. T. Avery, Brooklyn.
101. Origin and Development of Giant Cells in an Epidermoid Carcinoma of the Tongue. A. Forbes, Boston.
102. *Relation of Intestinal Absorption to Pulmonary Anthracosis. C. M. Montgomery, Chestnut Hill, Pa.
103. Sporothrix and Epizootic Lymphangitis. C. G. Page, L. Frothingham, Boston, and J. B. Paige, Amherst, Mass.
104. *Gonorrheal Salpingitis. F. B. Gurd, New Orleans.
105. Larva of *Strongyloides Intestinalis* in Human Lung. J. G. Gage, New Orleans.

96. Vaughan's Split Products.—This article is a confirmation of Vaughan's work and theory.

97. Anaphylaxis.—The experimental work reported on by Anderson and Frost is chiefly a study of the anaphylactic antibody (allergen) designed as a study of the principles of anaphylaxis rather than of its details. The authors have given special attention to the quantitative relations existing between allergin and its specific antigen, also to the relation of allergin to the conditions of hypersusceptibility, anti-anaphylaxis, and immunity. The wealth of detail in the paper precludes making an abstract for these columns.

98. Typhus Exanthematicus.—It is McCampbell's belief that European typhus fever and tabardillo are probably identical. The virus of tabardillo cannot be cultivated by the ordinary methods. There is nothing distinctive in the pathology of tabardillo. The most characteristic change is the extensive waxy degeneration of the heart and voluntary muscles. The blood taken from the rash in the macular stage in a large percentage of cases shows small micro-organisms which resemble the beaded bacilli of the hemorrhagic-septicemia group. These micro-organisms are not present in other parts of the circulation and are found only during the rash. The erythrocytes of tabardillo patients drawn during the rash show a peculiar vacuolization in a large number of instances. The vacuolization is not general throughout all the corpuscles. This suggests the possibility of an intracorporeal parasite. The virus of tabardillo can probably be transmitted to the monkey, producing a low febrile infection, and it is probably not filterable. The louse could be directly connected by experiment with the carrying of the virus of tabardillo.

99. Ascitic Fluids in Cancer.—The result in Weil's experiments have been almost entirely negative in character—that is to say, they have not indicated the existence of any specific character such as would serve to differentiate with certainty fluids derived from cancerous individuals from those of another origin.

100. Bacteriemic Theory of Tuberculosis.—The authors claim that there is no proof to show that the acid-fast organisms found by Rosenberger and others in their preparations of sedimented, citrated blood from tuberculous individuals were originally present in the circulating blood of these individuals, or that these bacilli are tubercle bacilli. On the contrary, it now seems reasonable to suppose that these acid-fast organisms were accidentally introduced into the microscopic preparations and are to be considered as contaminations. There appears, therefore, to be no adequate reason for changing previously established conceptions concerning the conditions governing the presence of tubercle bacilli in the circulating blood.

102. Intestinal Absorption and Pulmonary Anthracosis.—The alimentary route of pigment failed to lead to pulmonary anthracosis in guinea-pigs after ingestion and inhalation

experiments in which amounts of pigment were administered far in excess of amounts ingested under ordinary conditions. Intestinal absorption of inert particles has been demonstrated by proper experiments, but only after the repeated ingestion of amounts far in excess of those entering the alimentary tract under normal conditions. Apart from the alimentary route—which is practically a negligible factor—Montgomery says that there is only the respiratory route which may lead to pulmonary anthracosis occurring (1) accidentally, as found at autopsy in animals and human beings, and (2) artificially, the result of inhalation experiments. This is confirmed by inhalation experiments.

104. Gonorrheal Salpingitis.—According to Gurd, a much larger percentage of cases of salpingitis are due to the gonococcus than is usually supposed; at least 80 per cent. of the cases in Gurd's series are probably due to that organism. Old pus collections may become the nidus for infection by other organisms such as the colon bacillus. This organism, in all probability, enters the already present pyosalpinx by direct passage through the tissues from the frequently adherent sigmoid. The appearance of the tubes examined in this series suggests that the exacerbation of symptoms which occurs, periodically, in cases of chronic salpingitis is due to the repeated involvement of the peritoneal covering in an acute inflammatory process. The great preponderance of plasma cells over the other inflammatory cells, as well as the localization of the lesion, chiefly in the mucosa and submucosa, is very suggestive of the gonorrheal origin of an affection. The gonococcus invades the tube by means of the continuity of surface of the mucosa from the uterus. The histologic picture is probably to a great extent dependent on this fact.

Old Dominion Journal of Medicine and Surgery, Richmond
August

- 106 Medical Men of Virginia. L. G. Tyler, Williamsburg, Pa.
- 107 Hygiene of the Nervous System During Infancy and Childhood. B. R. Tucker, Richmond, Va.
- 108 Preparation of Patients for Prostatectomy. E. S. Judd, Rochester, Minn.
- 109 Congenital Union of Spleen and Liver. B. C. Willis, Rochester, Minn.
- 110 Effect of Heat and Cold in Tuberculosis. C. L. Minor, Asheville, N. C.
- 111 Uterine Descent. L. Gwathmey, Norfolk, Va.

Kentucky Medical Journal, Bowling Green

August 15

- 112 Peripheral Operation for Trigeminal Neuralgia. A. Schachner, Louisville.
- 113 Nystagmus as a Symptom in the Diagnosis of Ear Diseases. J. M. Ray, Louisville.
- 114 Cesarean Section. J. G. Sherrill, Louisville.

Bulletin of the Johns Hopkins Hospital, Baltimore

August

- 115 *Fatal Apnea and the Shock Problem. Y. Henderson, New Haven, Conn.
- 116 The Threefold Physiologic Origin of Uric Acid. W. Jones, Baltimore.
- 117 *Intrathoracic Displacements in Pulmonary Tuberculosis. A. P. Francine, Philadelphia.
- 118 Blood Cultures in Pneumonia. S. Strouse and P. W. Clough, Baltimore.

115. Fatal Apnea and the Shock Problem.—The acapnia hypothesis, according to Henderson, requires the prevention of excessive pulmonary ventilation. The administration of morphin and full anesthesia diminish the activity of respiration under pain and thus prevent acapnia. If, however, one administers morphin or chloroform to a subject after he has suffered for some time, fatal apnea is hastened unless carbon dioxid is also administered. When a moderate degree of shock has been induced by irritation of afferent nerves or by exposure of the viscera. Henderson finds that it is possible to induce a rapid recovery of arterial pressure by the infusion into a vein of normal saline or of Ringer's solution saturated with CO₂. Then the animal is made to breathe an atmosphere of oxygen and CO₂ or else merely of oxygen supplied at the end of a long tube. Under these conditions it rebreathes the oxygen several times and thus the CO₂ which the subject itself produces is utilized to stimulate respiration and increase the otherwise insufficient oxygen intake. If the degree of shock previously induced is not too severe, not only do these measures of relief induce a rapid restoration of arterial

pressure and respiration, but this restoration is maintained. On the other hand, in profound shock these measures fail to effect an ultimate recovery. Indeed, after the diminished blood stream has resulted in tissue asphyxia and acidosis no measure of relief, except perhaps hypertonic saline or transfusion of blood, can be of much use.

There are two methods of treating acapnia failure of respiration under anesthesia. If a soft catheter is inserted in the trachea down to the bifurcation of the bronchi and a gentle stream of oxygen gas is supplied, according to the method devised by Volhard, the subject will lie for a very long time indeed in complete apnea. By this method a supply of oxygen ample for all the needs of the tissues may be maintained. The oxygen should, however, be measured, and for a man should be not less than 400 c.c. per minute. Under these conditions in animals reaccumulation of CO₂ proceeds relatively rapidly. In one case Henderson has seen a dog in acute acapnia lie for 12 minutes without the slightest respiratory effort and at the end of this period recommence normal breathing. The oxygen jet had supplied ample oxygen for the combustion of the acidosis substances which would otherwise have been produced. This method of Volhard, therefore, accomplishes a double object. It prevents the acidosis of asphyxia at the same time that it allows the subject to recover from acapnia. Another method of restoration of breathing has been tried in dogs during apnea with strikingly successful results. It consists in administering air or oxygen containing 5 or 6 per cent. of CO₂ and in starting the subject to breathing by one or two artificial respirations. As soon as the normal tension of CO₂ in the lungs is thus restored spontaneous breathing immediately recommences and is maintained as long as the inspired air contains a sufficient quantity of CO₂ to stimulate the respiratory center. It will, Henderson thinks, be advisable to use for this purpose oxygen and CO₂, and not merely air plus CO₂, for the purpose of preventing the acidosis of which he speaks. Indeed, oxygen and CO₂ would combine the advantages of both methods for preventing fatal apnea. It must be remembered that CO₂ is a powerful drug and one to be administered in small quantities only—never in greater concentration than 5 or 6 per cent. Henderson has devised a simple gas meter which he believes may be useful for measuring the small quantities of CO₂ to be added to air or oxygen as a respiratory stimulant. It would be better to have the gases already mixed.

117. Intrathoracic Displacements in Pulmonary Tuberculosis.—This paper deals with the changes brought about in intrathoracic relations as shown by skiagrams of cases of pulmonary tuberculosis, studied clinically before and after taking of the x-ray plate, and is supplementary to a paper published in the *American Journal of Medical Sciences*, May, 1910, and abstracted in *THE JOURNAL*, May 28, 1910, p. 1822.

Iowa Medical Journal, Des Moines

August

- 119 The Quality, Quantity and Preparation of Foods. T. E. Powers, Clarinda.
- 120 Treatment of Valvular Heart Disease. G. C. Moorehead, Ida Grove.
- 121 Dietetics and Therapeutics of Autointoxication. M. Emmert, Atlantic.
- 122 Present Status of Serotherapy. W. J. Findley, Sac City.
- 123 Chronic Intestinal Catarrh: With Special Reference to Dietetic Management. W. E. Sanders, Alta.
- 124 Our Rights and Privileges. B. S. Louthan, Sutherland.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

August

- 125 *Action of Drugs on the Salivary Secretion. V. E. Henderson, Toronto.
- 126 Thyreotropic Iodin Compounds. R. Hunt and A. Seidell, Washington, D. C.
- 127 *Insufflation of the Lungs with Hydrogen, Carbon Dioxid, and Air. C. C. Guthrie, F. V. Guthrie and A. H. Ryan, Pittsburg.
- 128 *Influence of Intravenous Injections of Spartein and Adrenalin on the Heart of the Dog. A. Strickler and M. S. Fleischer, Philadelphia.
- 129 Detoxification of Benzoic Acid by Optical Isomers of Leucine. A. H. Koelker and S. Amberg, Baltimore.
- 130 Toxicology of the Tutu Plant. W. W. Ford, Baltimore.

125. Salivary Secretion.—It was found by Henderson that iodids are excreted by the salivary gland, but that their

always. Of his series one was in the back of the sheath of the rectus, one in the conjoined tendon of the internal oblique and transversalis, another in the substance of the external oblique muscle above the eleventh costal cartilage, and finally, one consisting of fibrous tissue with unstriated fibers in the left inguinal canal, and, in Lockwood's opinion, in the round ligament of the uterus.

The anatomic situation of these tumors, says Lockwood, ought to be noted, because some are spindle-cell sarcomata, which return after removal, and ultimately kill the patient. To extirpate a spindle-celled sarcoma successfully, it is necessary to make a very wide removal of the muscle in which it is growing. To the naked eye these tumors have the ordinary character of the fibrous structures of the body. Perhaps they may look a little redder, but there is nothing distinctive in the naked-eye appearances. Some of them are like the gizzard of a fowl in shape, color and consistency. Some have a capsule.

With regard to the clinical history of these tumors, the patient says that they are usually painless, and are not tender to the touch. The fibromata are of long duration; they take years to grow. In the case of a man with one behind the sheath of the right rectus, there is a history of fourteen years, and others had histories measured by years. The growth of sarcomata, on the other hand, is measured by months, so that an accurate clinical history throws some light on the nature of the tumor and the course which it might pursue. The surgical treatment of these tumors of the abdominal wall depends on their pathologic characters. An encapsulated tumor may be removed from its capsule, especially when one knows that the tumor consists of fibrous tissue. But if there is no capsule and if the tumor is growing along one of the abdominal muscles then the removal becomes a matter of great difficulty.

3. Aid to Diagnosis in Malignant Disease.—A careful examination of the urine in malignant and non-malignant cases convinced Royle that the uric acid output in malignant disease is greater than in ordinary hospital patients under similar conditions and taking the same diet, and that the phosphate excretion is much lower in malignant than in non-malignant patients under corresponding conditions and taking the same diet, and that it falls with the advance of the disease. The resulting ratio of

$$\frac{\text{phosphates}}{\text{uric acid}}$$

is much lower in malignant

cases than in the corresponding controls done in non-malignant cases. Also, this ratio falls throughout the course of the disease. These conditions, Royle thinks, are largely, though not absolutely independent of the particular form of diet, the same changes being noted in malignant patients on any diet as compared with ordinary hospital patients on a similar diet. With diets consisting largely of milk, however, and of little or no meat, lower uric acid figures, often higher phosphates, and in most cases higher ratios are given in malignant and non-malignant patients than would be the case if the patient were on "common diet."

From the results obtained, Royle believes that an examination of the urine will prove of great value as an aid to diagnosis in obscure cases of cancer, especially in cancer of the alimentary canal and abdominal organs, which is often difficult to distinguish from such diseases as gastric ulcer, tuberculosis, gall-stones, etc. In order to apply this test, it is necessary to estimate the uric acid and phosphate content of the urine, and to consider the figures separately and then take into account the

$$\frac{\text{phosphates}}{\text{uric acid}}$$

ratio, any ratio below 4

being suggestive, especially if it remains low on several occasions, and any ratio below 3 is almost diagnostic of malignant disease or a blood disease.

4. Occluding and Suboccluding Ligatures.—The point made by Bonney is that suboccluding ligatures should be avoided.

6. Artificial Pneumothorax.—Holmboe reports in detail a case of moderately advanced pulmonary tuberculosis in which

the production of an artificial pneumothorax resulted in wonderful improvement after serotherapy had failed. Cough and expectoration ceased, temperature and pulse became normal, weight increased 20 pounds, and the patient was able to work several hours each day. Similar results were obtained in four other cases.

9. Effect of Radium on Healthy Tissue Cells.—This preliminary note is the result of some experimental work by Mills on the comparative effects of radium on normal mouse tissues. The radium was applied over the anterior abdominal wall and the subsequent changes in the liver tissue were observed. The applicator used was one of 500,000 units and was guarded by a shield which cut off the A and B rays, while allowing the more penetrating Y rays to pass through. It was applied for 30 minutes in each case. The mice were killed at varying intervals after exposure and the liver examined microscopically. The earliest definite change noticed occurred about one hour after irradiation. The liver cells in this section were more granular than usual, and there were none of the clear glycogen-containing vacuoles which are present in the normal mouse liver. Otherwise the liver cells themselves appear normal. The connective tissue elements also showed the early stages of a reaction. This was manifested by the presence of numerous groups of round and spindle cells in the neighborhood of the veins. There was distinct hyperemia, but at this stage there was no general increase of the mesoblastic cells. Three hours after irradiation the liver cells were profoundly altered. The protoplasm was deeply granular and the nucleus stained very clearly and was considerably swollen. The whole cell also was slightly increased in size, but not nearly to such an extent as the nucleus. The areas of mixed-cell infiltration round the veins were larger and more numerous. Sections taken 6 hours after irradiation showed that the liver cells had become more normal in appearance. The protoplasm was no longer granular, but the nucleus was still enlarged. The hyperemia was less and there was less infiltration with connective tissue cells than in the previous section. In 24 hours the vast majority of the liver cells appeared normal. Scattered about the section, however, there were a few cells which appeared to have degenerated completely. While these changes were found in the liver generally, there was in most of the sections a place near the edge where the cells had suffered a greater and permanent change. There was in the sections taken 3 hours after irradiation a mass of liver cells which had completely lost their structure. A similar condition was found in the sections examined up to the eighth day after irradiation, and in the later ones some signs of organization of the affected part were observed. Presumably this mass of necrosed tissue corresponded to the spot immediately over which the radium was applied, and represents the effect of the rays at a very close range. It is of interest that in no case was any inflammation of the skin observed.

In the sections taken 14 and 15 days after irradiation, however, there were obvious signs that a second or late reaction was taking place. This was confined to the connective tissue elements and consisted of a marked general infiltration of the liver with lymphocytes, connective tissue cells, and a few polymorphonuclear leukocytes, and this to a greater extent than in any of the sections taken during the few days immediately following irradiation. There were also large masses of similar cells clustered round the veins. These changes were associated with a general hyperemia. No area of necrotic cells was observed. It would appear that this is the histologic basis of the "radium reaction" observed clinically by radiographers, and it is of interest to note that it is confined to the connective tissue elements. This late reaction lasts longer than the initial one, for 20 days after irradiation the liver was still found to be in a similar condition.

British Medical Journal, London

August 13

- 11 Value and Misuse of Spectacles in the Treatment of Headache, Migraine and Other Functional Troubles of the Eyes. R. W. Doyne.
- 12 Refraction of the Eye in School Children. A. E. Dorrell.
- 13 Relations of Poor Law Reform to Public Health and the Medical Profession. S. Webb.

Medical Press and Circular, London

July 27

- 14 The Principles and Treatment of Pulmonary Emphysema. T. Ewart.
- 15 The General Medical Council: The Medical Profession and the Public. H. Walsh.
- 16 Displacements of the Uterus. H. R. Andrews.
- 17 The Conceptions of Insanity and Their Practical Results. J. MacPherson.
- 18 The Acute Infections of the Lungs. A. Fraenkel.

Clinical Journal, London

August 3

- 19 Skin Rashes and Their Treatment. J. L. Bunch.
- 20 Study of *Paracanthus Armillatus*. A. F. Hertz.
- 21 Disorders of Speech: Dysarthria; Aphemia, Annesia; Prognosis, Diagnosis and Illness.

Journal of Tropical Medicine and Hygiene, London

August 1

- 22 Blackwater Fever. J. F. G. Mayor.

Annals of Tropical Medicine and Parasitology, Liverpool

July

- 23 Parasitic Granuloma. A. R. Ferguson and O. Richards.
- 24 Study of *Paracanthus Armillatus*. A. Braden and J. Rodhain.
- 25 Absence of a Vesicant in Ether Extract from Mosquitoes. J. O. W. Barratt.
- 26 Factors in the Transmission and Prevention of Malaria in the Panama Canal Zone. S. T. Darling.
- 27 Effect of Cold on Various Diseases in Small Animals. R. Ross and C. L. Williams.
- 28 Malaria Prevention in Jamaica. R. Boyce.
- 29 Species of Cyclops and Other Entomostraca Collected in Northern Africa. G. S. Brady.
- 30 A New Anopheline from the Federated Malay States. M. Watson.
- 31 Occurrence of Schizogony in an Avian *Leucocytozoon*. J. Lovati, Parasitic in the Red Grouse, *Lagopus Scoticus*. H. B. Fantham.
- 32 Sleeping Sickness Studied by Precise Enumerative Methods. R. Ross and D. Thomson.

26. Transmission and Prevention of Malaria in Panama.—This paper details a most exhaustive study of many phases of malaria, and for purpose of reference only, the following list of points discussed are given: Anophelines of this region; collection of larvæ; breeding out mosquitoes and methods of feeding; biting-infecting experiments; estimation of gametes; care of mosquitoes after feeding; method of examining for zygotes and sporozoites; description of the malarial parasite in the mosquito; table of infecting experiments; notes and conclusions from table of infecting experiments; limit of infectiousness of man; notes on the bionomics of anophelines; effect of salt or sea water on larvæ; experiments with larvacides; experiments with agents destructive to vegetation, grass and algae; experiments with screening of various mesh; relative value of wire screening of various composition, based on practical tests and chemical analysis; note on the value of the practice of killing anophelines found in quarters and barracks; effect of quinin on the parasite in mosquito and man.

On the last point mentioned, Darling says that the effect of quinin administration is to make the gametes gradually disappear from the peripheral blood by the destruction of the young forms, the gametes being phagocyted by splenic and hepatic endothelium. It is concluded that quinin, 10 grains, thrice daily, in solution, will gradually reduce the sexual form of the parasite in man to a non-infective minimum in from a few days to a few weeks, depending on the severity of the infection. In simple tertian malarial fever, gametes disappear from the peripheral blood within two or three days under quinin treatment, and generally disappear even when quinin is withheld, even if the patient is at rest. There are never so many gametes in the peripheral blood in simple tertian malaria as in malignant tertian malaria. As a consequence, one never finds so many simple tertian zygotes as malignant zygotes in infected mosquitoes.

27. Effect of Cold on Diseases in Small Animals.—The animals subjected to the influence of cold were guinea-pigs, rats and mice. They were placed in cages, well-bedded and well-fed, fat and proteid especially being provided in their diet. The diseases brought under the influence of the cold were chiefly various trypanosomiasis, with, in addition, tuberculosis (bovine), cancer (in mice), tetanus, and spirochetosis. The only animal which failed to show trypanosomiasis after inoculation with *T. brucei* was one in the cold chamber. Twelve

mice were inoculated with cancer, and 6 put into the cold chamber: 5 lived 50, 51, 56, 70 and 90 days respectively, whereas of the 6 controls, 2 lived 56 and 76 days respectively. Of the remainder, 3 controls failed to develop tumors, and 1 each in the control and cold chambers died within a few days of inoculation. Some mice were also infected with *Spirochaeta duttoni*, but no appreciable influence on the course of the disease could be observed in them.

Five guinea-pigs with tetanus were placed under observation. One, injected with 1/500 c.c. of a culture and placed in a cold chamber, died in 9½ days, but it is very doubtful if it died of tetanus; 2 injected with 1/1,500 and 1/1,000 c.c. respectively and kept as controls never showed any symptoms; while 2 injected with 1/500 c.c. and placed, 1 in the cold chamber and 1 as control, died with similar symptoms in a similar time—something over 50 hours.

An Englishman suffering from sleeping sickness of some 3 months' duration had a course (interrupted for some days) of 12 days, or some 53 hours in all, of cold air. The temperature was gradually decreased till 24 degrees F. was reached. He himself said he felt much better for the treatment, which acted on him as a tonic, but in the short period he was under observation no visible diminution was apparent in the number of trypanosomes in the blood.

Six guinea-pigs were inoculated with bovine tuberculosis (0.1 mg. culture) and 3 placed in the cold chamber and 3 outside, with, of course, uninoculated controls in both cases. The uninoculated controls thrived, except that 1 in the cold chamber died after 34 days of no obvious cause, there being only a little lung congestion evident in post mortem. Of the inoculated, all are still alive, and those in the cold chamber have now been in it 137 days, and seem quite fit and well. One female has aborted twice, but whether from the cold, the tuberculosis, or other cause, cannot be stated definitely. Four guinea-pigs have since been inoculated with human tuberculosis, and 3 of these are at present under observation, 1 having died soon after inoculation. Several rats have been inoculated with cultures of pneumococcus, but so far no marked difference has been observable in their symptoms, whether in or out of the chamber, and none has died, so that they remain under observation, and the final result will only become apparent later.

Glasgow Medical Journal

August

- 33 Latent and Chronic Infections with the Typhoid Bacillus. C. H. Browning and W. Gilmour.
- 34 Embryologic Significance of Certain Lesions of the Prepuce and Neighborhood. G. H. Edgington.
- 35 Congenital Occlusion of the Duodenum (Accompanying a Deficiency of the Hind Gut). A. H. Gray.

Journal Laryngology, Rhinology and Otolaryngology, London

August

- 36 Ménière's Symptoms with Facial Paralysis. A. Bruce and J. S. Fraser.
- 37 The Operative Technique of the Labyrinth. Dr. Bourguet.

Archives des Maladies du Cœur, Etc., Paris

August, III, No. 8, pp. 465-528

- 38 The Proteolytic Antiferment of the Serum. N. Fiessinger.
- 39 The Wassermann Reaction with Disease of the Cardiovascular System. Øigaard.
- 40 The Neutro-Leukocyte Quotient and Nuclear Index. (Examen des neutrophiles du sang circulant; leur valeur nucléaire en rapport avec les autres globules blancs; indice nucléaire et quotients neutro-leucocytaires.) J. Sabrazès.

Lyon Chirurgical, Lyons

August, IV, No. 2, pp. 109-224

- 41 The Thyroid Lesions of Primary Exophthalmic Goiter and of Goiter Tending to this Type. (Les lésions thyroïdiennes de la maladie de Basedow primitive et du goitre basedowien.) H. Alamartine.
- 42 The Wassermann Reaction. C. Garin and C. Laurent.
- 43 Fractures of the Elbow in Children. (Les fractures du coude chez l'enfant.) H. Muller. Commenced in No. 1.

41. The Lesions in the Thyroid with Exophthalmic Goiter.—Alamartine has become convinced by his clinical experiences and research on resected goiters that exophthalmic goiter is generally the result of some toxi-infectious thyroiditis, entailing cirrhosis with hypertrophy of the gland and insufficient or perverted secretion. Rheumatism and tuberculosis, he asserts, are the two infections whose causal influence has been most effectually demonstrated.

Obstétrique, Paris

July, N. S. III, No. 7, pp. 609-672

- 44 *Treatment of Depression of the Skull in New-Born Infants. (Traitement des enfoncements du crâne chez le nouveau-né.) P. Commandeur.

44. Depression of the Skull in New-Born Infants.—Commandeur warns of the serious consequences liable to follow birth traumatism causing depression or indentation of the cranial bones. The immediate mortality is about 14 per cent. In case of survival there may be hemiplegia, convulsions and epilepsy or idiocy as the child grows up. Sometimes the depression spontaneously springs back into place; this is more likely to occur with parietal than with frontal depressions. If the depression is causing symptoms it should be corrected immediately, and a frontal depression should always be corrected, he affirms, without waiting for symptoms. If there are no symptoms from a parietal depression temporizing is allowable but never for more than 10 days. He has found 46 cases on record in which the depression was artificially corrected; infection was responsible for the 3 possibly operative fatalities. Correction of the depression put an end at once to the symptoms; they were more severe with the frontal depressions. Vicarelli has improved the corkscrew method and has applied it in 14 cases with constant success; in 5 cases in which it was applied by others, 2 of the infants succumbed to meningeal hemorrhage. In the 27 other cases the depressed part of the bone was pushed into place from below, entering through the sutures or an incision in the bone. Commandeur commends the corkscrew method as preferable when indications permit, especially when the soft parts are incised and drawn out of the way and the Heine or modified corkscrew is inserted directly into the bone. Full directions are given for this and the other modes of correcting the depression and the cases in which this treatment was applied are reviewed with some medical cases bringing the total to 52. All emphasize the dangers of delay.

Presse Médicale, Paris

July 27, XVIII, No. 60, pp. 577-584

- 45 Characteristics of the Streptothrix Family. (Sur les caractéristiques du genre Oospora et son extension dans l'état de nos connaissances.) A. Sartory.
46 *Differential Diagnosis of Syphilitic Chancre of the Tonsil and Chancreiform Angina. A. Le Play and A. Sézary.

August 3, No. 62, pp. 593-600

- 47 The Criteria of Physical Development. II. Dausset and P. Desfosses.
48 Intravesical Segregation of Urine and Catheterization of the Ureters. G. Luyt.

August 6, No. 63, pp. 601-608

- 49 *Recurring Attacks of Diarrhea with Neuro-Arthritic Diathesis. (La crise d'entéro-colite chronique envisagée comme décharge toxique des neuro-arthritiques.) II. Marcou.
50 *Repeated Lumbar Puncture in Treatment of Fracture of Base of Skull. A. G. Apostolides.

46. Chancre in the Tonsil.—Le Play and Sézary report a case in which the chancre developed in the left tonsil, the lesion presenting the aspect of an ulceromembranous sore throat. The persistence of the lesion for three weeks notwithstanding systematic gargling with potassium chlorate was suspicious although there was no enlargement of glands in the vicinity and the ultramicroscope revealed spirochetes. The diagnosis of syphilis was confirmed by a roseola that developed soon afterward and the positive Wassermann reaction. There was no fever at any time. In a second apparently similar case there was slight fever towards night and a slight tendency to glandular enlargement; but the ultramicroscope revealed the spirilla and fusiform bacilli of Vincent's angina and the course of the case confirmed this diagnosis. In both cases the microscopic field contained two or more specimens of the *Spirochæta refringens*.

49. Periodical Intestinal Disturbances as Regulatory Process.—Marcou explains the sudden transudation into the bowel, which is the common feature in all cases of chronic diarrhea, as sometimes an automatic means of clearing out the poisons in the system when they have accumulated beyond a certain point. The diarrhea in chronic kidney disease is merely an exaggeration of this process of cleaning out the body such as occurs in the neuro-arthritic on a milder scale. Schmidt's "diarrhea from transudation of an easily putrefying fluid" also belongs in this class as also some of the attacks of

gastrointestinal trouble that come on after weaning, such as Herter and Heubner have described (THE JOURNAL, March 13, 1909, page 913, and Jan. 22, 1910, page 330). The attacks of recurring enterocolitis can thus be regarded as an automatic regulating process when they occur in individuals with an inherited tendency to auto-intoxication, belonging to the great family of neuro-arthritics, that is, those predisposed to nervous and joint disturbances. This conception enables the physician to tranquilize the patient during these recurring bowel troubles, teaching him to regard them as an effort by Nature to throw off accumulated poisons, a natural purification, which must be borne in patience, and that there is no necessity for doing the Wandering Jew act from doctor to doctor which is so often the practice of patients of this class. The violence and frequency of the attacks can be influenced by treatment of the underlying neuro-arthritic diathesis, reducing the opportunities for accumulation of toxins by dieting, and toning up the nervous system in general. At the same time, Marcou warns against too precise instructions in regard to the diet as the patient may learn to dread all kinds of food.

50. Lumbar Puncture after Fracture of Base of Skull.—This communication from Smyrna emphasizes the advantages of lumbar puncture both for differentiation and cure of fracture of the base of the skull, reporting a case in which there were signs of meningitis after a fall on the head, intense headache, incoherent babbling, the pulse being 50. Lumbar puncture released about 40 c.c. of bright red fluid under high pressure and the patient roused at once, the headache disappeared and the mind became clear. Some of the symptoms returning later other punctures were made with equally good effect. The fluid was limpid at the fourth puncture and recovery was soon complete and there have been no disturbances during the 10 months since. In this case the puncture was made the same day as the accident, but in the second case the meningitic symptoms did not develop for a few days and the puncture was not made until the twelfth day after the accident; 4 punctures in the course of 6 days also resulted in practically complete recovery although this patient still has total anosmia. The puncture not only relieves the brain from the pressure of fluid but by releasing this fluid it washes out quantities of germs which otherwise would find in the bloody fluid an excellent culture medium.

Semaine Médicale, Paris

August 10, XXX, No. 32, pp. 373-384

- 51 Digestive Insufficiency After the Nursing Period. (La dénutrition par insuffisance digestive au cours de la seconde enfance.) L. Cheinisse.

Berliner klinische Wochenschrift

August 1, XLVII, No. 31, pp. 1441-1484

- 52 *Treatment of Spastic Paralysis by Resection of the Posterior Spinal Roots. (Operative Behandlung der spastischen Lähmungen mittels Resektion der hinteren Rückenmarkswurzeln.) O. Foerster.
53 *Test of Kidney Functioning by Determination of Proportion of Diastase Eliminated in the Segregated Urine. (Neue Methode zur Prüfung der Nierenfunktion.) J. Wohlgemuth.
54 Action of Gonococcus Vaccine on Course of Gonorrheal Processes. C. Schindler.
55 Superinfection of Rabbits with Syphilis. (Ergebnisse der Superinfektion bei der Syphilis der Kaninchen.) E. Tomaszewski.
56 Intravenous Injection of Ehrlich's 606. (Die intravenöse Einspritzung des neuen Ehrlich-Hata-Präparats gegen Syphilis.) E. Schreiber and J. Hoppe.
57 *Transfusion of Human Blood in the Clinic After Preliminary Biologic Tests. (Bluttransfusion beim Menschen.) W. Schultz. Commenced in No. 30.
58 Staining Technique for Differentiation of Tubercle Bacilli. (Weitere Erfahrungen über meine Methode der Tuberkelbacillenfärbung.) D. Gasis.
59 Bacilli on Fauces Liable to Prove Source of Error in Sputum Examination. (Eine Fehlerquelle bei der Antiforminmethode.) H. Beltzke.
60 Hemolytic Substances in Stomach Content Not Specific for Cancer. (Anwesenheit hämolytischer Substanzen im Mageninhalt.) S. Livierato.
61 Idem. (Wert des Isosylsinebefundes für die Diagnose bösartiger Geschwülste.) B. Agazzi.

52. Resection of Posterior Roots for Spastic Paralysis.—Foerster here gives the theoretical bases for the operation generally known by his name and reviews the indications, technique and results. In every case in which it has been applied to date the spastic contractures were mitigated or entirely cured, he states, adding that adjuvant measures are indis-

pensable to produce the best ultimate results. He cites 16 cases in which the operation has been performed, but the list is actually much longer.

53. Test of Kidney Functioning by Elimination of Diastase in the Urine.—Wohlgemuth applied this test first on dogs and then in 50 clinical cases, the reliability and accuracy of the findings sustaining, he declares, the value of this simple method of testing kidney functioning; the test is complete in half an hour. He has two sets of 10 test-tubes, in which he pours from 0.06 to 0.6 c.c. of urine in turn and then to each tube he adds salt solution to bring the total contents of each to 1 c.c. He then adds to each tube 2 c.c. of a 1 to 1,000 solution of "soluble starch." The stands with the tubes are then set in the water bath at 38 or 40 C. for half an hour after which 1/50 normal iodine solution is added to each tube, a drop at a time, until the tint changes permanently. The findings are obtained by comparison of the action of the diastase according to the concentration in starch in the different tubes, each set containing the urine from only one kidney, segregated by catheterization of the ureters. The urine does not have to be filtered, and it can also have served previously for determination of the freezing-point; a little blood does not affect the test. In health, both human beings and dogs seem to eliminate approximately equal proportions of diastase with both kidneys. In a typical case reported, the freezing-point was 1.28 in the right urine and 0.53 with the left; sugar, 1.6 per cent. with the right, and 0 with the left; indigocarmin test: green after 7 minutes and blue after 15 with the right urine, the left urine still colorless; the index from the diastase test after 30 minutes was 10 in the right kidney and 3.33 with the left; after 24 hours, 25 with the right and only 8.3 with the left. The findings with all these functional tests thus harmoniously agreed, while the diastase test is even more sensitive than the indigocarmin and phloridzin tests as it often gave positive findings when the other tests were still negative.

57. Therapeutic Transfusion of Blood.—Schultz reports a good outcome in 10 cases in which he made a transfusion of defibrinated blood in serious anemia, after having tested the action of the alien blood on the patient's blood corpuscles. He was thus able to refrain from using blood that displayed any tendency to induce agglutination or hemolysis. Even in the one case in which this was not done, and the transfusion induced acute collapse, chill, fever to 104 F. and edema, yet the general effect seemed to be good after these symptoms had subsided. The transfusion had a markedly favorable effect in all the cases of secondary anemia, but in pernicious anemia the benefit was only transient.

Correspondenz-Blatt für Schweizer Aerzte, Basel

August 1, XL, No. 22, pp. 697-728

62 *Indications for Prostatectomy. F. Suter.

63 Progress and Limitations in Efforts to Insure Asepsis Before, During and After Operations. (Keimprophylaxis bei der Wundbehandlung und Streben nach Präventivmitteln gegen die Wundinfektion.) C. Brunner. Commenced in No. 21.

62. Indications for Prostatectomy.—Suter operated last year in 10 cases of prostatic retention, all by the suprapubic route by Freyer's technic. The functional results were good in every case except one in which the hypertrophy proved to be malignant. In the case of 2 comparatively young men he performed the primary prostatectomy without delaying for catheter treatment as he was anxious to ward off infection of the bladder. The virility was not impaired in any case by the operation; this is the principal advantage of the Freyer technic.

Deutsche medizinische Wochenschrift, Berlin

August 4, XXXVI, No. 31, pp. 1433-1472

64 Prophylaxis and Treatment of Measles. (Masern.) F. Siebert.

65 *Transient Cortical Amaurosis from Traumatism of the Head. (Ueber passagere Rindenblindheit durch Commotio cerebri.) C. Hirsch.

66 Present Status of Knowledge in Regard to Viscosity of the Blood. F. Krone.

67 Study of the Psychic Gastric Secretion. (Untersuchungen über den psychischen Magensaft bei einem Kranken nach Gastrostomie.) R. Hertz and S. Sterling.

68 *Amenorrhea and Tertiary Syphilis. E. Meikowsky and K. Frankenstein.

69 Production of and Technic for Use of Compressed Air in Hospitals. (Der Luftkompressor im Krankenhaus.) F. Kubn.

65. Transient Blindness from Contusion of the Skull.—The patient was a boy of 12 who had been run over by an automobile and brain substance protruded from a gash in the skull. The boy was unconscious at first and was blind when he roused, the amaurosis being complete with no perception of light. Vision then gradually returned and by the third day was normal and it has persisted so to date, the other injuries soon healing.

68. Amenorrhea and Tertiary Syphilis.—The amenorrhea had lasted for 6 and 8 years in the 3 cases reported; the women were from 28 to 42 years old. All were suffering from severe manifestations of tertiary syphilis and under the mercury and iodid they were taking menstruation returned; it was quite normal in the younger women but assumed a vicarious form in the other, epistaxis recurring regularly at the menstrual period. The cases emphasize the importance of specific treatment for amenorrhea in women whose history suggests the possibility of syphilitic changes in the ovaries.

Medizinische Klinik, Berlin

August 7, LV, No. 32, pp. 1243-1283

70 Neuroses after . . . (Neurosen nach Unfällen; Winkler).

71 Psychology . . . of Old Age. (Greisenalter.) A. H. Müller. Commenced in No. 31.

72 Generalized Infections with the Colon Bacillus. (Allgemeinfektionen des menschlichen Körpers durch Bacterium coli commune.) A. Lindemann.

73 Incandescent Light Baths. (Ueber Glühlichtbäder.) R. von Jaksch.

74 Wismuth Paste in Treatment of Fistulas. M. Brandes.

75 Normal Weight in Proportion to Height. (Ueber das nach der proportionalen Körperlänge bestimmte Normalgewicht.) G. Ziegler.

76 Radium in Treatment of Cancer. F. W. Naehmacher.

77 Formula for Expressing Features of the Circulation. (Zur Theorie der Zirkulationsformeln.) A. Sperling.

78 Tuberculosis Toxins. (Ueber Tuberkulosegifte.) F. Jessen.

Münchener medizinische Wochenschrift

August 2, LVII, No. 31, pp. 1625-1672

79 Industrial Accidents Arousing Latent Internal Disease in Apparently Sound Individuals. (Betriebsunfälle; Mitteilung eines Falles von bis dahin symptomlos verlaufenem Verschluss der 1. Karotis und erheblicher Verengung beider Arteriae subclaviae.) Ch. Bäumer.

80 *Atypical Forms and Complications of Intermittent Limping. (Atypische Formen und Komplikationen der arteriosklerotischen und angiospastischen Dysbasie.) H. Curschmann.

81 *Treatment of Little's Disease

82 Experimental Transplantat . . . of Stomach Mucosa. (Ueber die Magenschleimhautappen.)

83 Experiences with Ehrlich's 606 in Treatment of Syphilis. (Kürzer Bericht über 109 mit "606" behandelte Luesfälle.) A. Glück.

84 Treatment of Anthrax. (Zur Behandlung des Milzbrandes.) F. Koelsch.

85 *Improved Technic for Treatment of Small-Pox. (Beitrag zur Behandlung der Variola.) W. Dreyer.

86 Helminthiasis and Treatment with Oil of Chenopodium. (Ueber Ascaridiasis und ihre erfolgreiche Behandlung mit dem amerikanischen Wurmsamenöl.) M. Gockel.

87 Aspiration of Pleural Effusion. (Ein neuer Pleurapunktionsapparat.) W. Weitz.

80. Atypical Forms of Intermittent Limping.—Curschmann regrets that physicians do not make a practice of examining the arteries in the foot more frequently as they thus miss the explanation of many puzzling syndromes. The diagnosis of arteriosclerotic intermittent limping is further rendered more difficult by the atypical forms occasionally observed, as in 2 cases he describes in which the patients had intense pains come on while they were at rest, especially at night, and the pains were dissipated by getting up and walking—the syndrome thus being exactly the reverse of the classical type. In both the cases there was a history of syphilis 10 or 11 years before, and in both the affection came on with a sudden onset. These cases resemble 2 recently described by Erb as "arteriitic dysbasia." In some other atypical cases reported by Curschmann there was a combination of intermittent limping affecting the left foot, vascular cramps in both hands during work, with occasional motor disturbances, actual dyspraxia, and at the same time intermittent intense pain in the left arm. A similar syndrome was observed in other patients free from arteriosclerosis, and he is inclined to explain it as an abnormal tonicity of the smaller arteries, a pure angiospastic form of dyspraxia. In another case the presumptive diagnosis is angiospastic intermittent limping developing in the course of a climacteric vasomotor neurosis.

was on the side toward the opening in the skin, which was tamponed. Four days later, the gangrenous intestine perforated as anticipated at the point thus left exposed, and fecal matter was voided here as well as by the rectum for a time but the fistula gradually tended towards healing. In a second case in which this technic was applied the fistula healed completely in 25 days.

Riforma Medica, Naples

July 18, XXVI, No. 29, pp. 785-812

- 113 Demonstration of a Capsule for Certain Bacteria Hitherto Supposed Not to Have Capsules. T. Carpentieri.
114 *Cure of Perforating Ulcer of the Foot by Stretching the Sciatic Nerve. (Contributo alla cura dell'ulcera perforante del piede mediante lo stiramento dello sciatico.) A. Fontana.
115 Two Cases of Primary Melanotic Sarcoma of the Parotid Gland. F. Delalain.
July 25, No. 30, pp. 813-840
116 Study of the Blood with Thyroid Disturbances. (Ricerche ematologiche nelle affezioni della tiroide.) G. Morone.
117 Behavior of the Malta Fever Micrococcus in the Liver and the Biliary Passages. (Comportamento del micrococco melleitense nel fegato e nelle vie biliari.) G. Radice.
118 Experimental Research on Influence of Jaundice on Phagocytosis. (Influenza dell'ittero sul potere fagocitario del sangue in alcune infezioni.) S. Maggiore.

114. Stretching the Sciatic Nerve in Treatment of Perforating Ulcer of the Foot.—In the first of the 4 cases reported the trophic disturbances had been cured by stretching the plantar nerve, but the ulcer in the foot recurred before the year was out, and this time the sciatic nerve was isolated and stretched. The cure was soon complete and has been permanent during the 2 years since. In the second case the sciatic was stretched to cure coexisting sciatica and it cured at the same time the ulcer on the foot which was evidently secondary to the trouble in the sciatic nerve. The results were equally good in the 2 other cases. His patients were men 25, 49, 60 and 70 years old, and 3 were hard drinkers. The nerve was stretched under morphin-chloroform general anesthesia and the ulcer was curetted and dressed at the same time.

Hospitalstidende, Copenhagen

June 29, LIII, No. 26, pp. 705-800

- 119 Pathogenesis of Glaucoma. (Overvejelser og Undersøgelser angaaende Glaucomets Pathogenese. Om lymfostat og hemostat Glaucom.) C. F. Heerfordt.
120 Differential Pressure. (Nogle Bemærkninger om Overtryksrespiration.) A. Krogh.
July 6, No. 27, pp. 801-824
121 Treatment of Vulvovaginitis with Gonococcus Vaccine. H. Boas and O. Wulff.
July 13, No. 28, pp. 825-848
122 Traumatic Rupture of the Sclerotic with Hydrophthalmia. N. Høeg.
123 Negative Tuberculin Skin Test in Hebra's Prurigo. (Prurigo Hebra's Forhold til Tuberkulose.) H. Boas.
July 27, No. 30, pp. 873-904
124 Research on Causes of Fluctuations in Number of White Corpuscles in the Blood in the Capillaries. (Nogle Undersøgelser over Svælgninger i Antallet af hvide Blodlegemer i Kapillærblodet og Aarsagerne til disse.) J. Lindhard. Commenced in No. 29.

Ugeskrift for Læger, Copenhagen

July 28, LXXII, No. 30, pp. 885-922

- 125 The Hypophysis Cerebri and its Pathologic Importance. P. T. Hald.
August 4, No. 31, pp. 923-942
126 Chemotherapy to Date. H. I. Bing.
127 Advantages of Local Treatment of Superficial Ulcerations with Ethyl Chlorid. (Terapeutiske Noter.) S. Christens.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

I. INFLUENCE OF AGE AND TEMPERATURE ON THE POTENCY OF DIPHThERIA ANTITOXIN. By John F. Anderson, Director Hygienic Laboratory, U. S. P. H. and M.-H. S. Pp. 9-26. II. AN ORGANISM. (PSEUDOMONAS PROTEA) ISOLATED FROM WATER, AGGUTINATED BY THE SERUM OF TYPHOID FEVER PATIENTS. By W. H. Frost, Passed Assistant Surgeon, U. S. P. H. and M.-H. S. Pp. 29-76. III. SOME CONSIDERATIONS ON COLORIMETRY, AND A NEW COLORIMETER. By Norman Roberts, Passed Assistant Sur-

geon, U. S. P. H. and M.-H. S. Pp. 79-93, with illustrations. IV. A GAS GENERATOR, IN FOUR FORMS, FOR LABORATORY AND TECHNICAL USE. By Norman Roberts, Passed Assistant Surgeon, U. S. P. H. and M.-H. S. Pp. 99-110, with illustrations. Hygienic Laboratory, Bull. 66, U. S. P. H. and M.-H. S. Treasury Dept. Paper, Pp. 110, with illustrations. Washington: [Superintendent of Documents] Government Printing Office, 1910.

A TEXT-BOOK OF MENTAL DISEASES. By Eugenio Tanzi, Professor of Psychiatry in the Royal Institute of Higher Studies of Florence. Authorized Translation from the Italian by W. Ford Robertson, M.D., C.M., Pathologist to the Scottish Asylums, Edinburgh, and T. C. MacKenzie, M.D., F.R.C.P., Edin., Medical Superintendent, Inverness District Asylum. Cloth. Price, \$7. Pp. 803, with 132 illustrations. New York: Rebman Company, 1910.

THE EXTRA PHARMACOPEIA. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B., Lond., D.P.H. Fourteenth edition. Morocco. Price, 12 shillings net. Pp. 1074, with supplement, Organic Analysis Chart, by W. Harrison Martindale, Ph.D., Pharmaceutical Chemist, Morocco. Price, 3 shillings 6 pence net. Pp. 80. London: H. K. Lewis, 136 Gower Street, W. C., 1910.

PROCEEDINGS OF THE EXERCISES AND CONFERENCES OF THE NATIONAL ASSOCIATION FOR THE STUDY AND EDUCATION OF EXCEPTED CHILDREN. Inaugurated on the occasion of the Tenth Anniversary of the Groszmann School for Nervous and Atypical Children, April 1, 1910. Waldemar H. Groszmann, Secretary. Plainfield, N. J. Paper. Price, \$1.50. Pp. 141. 1910.

CLINICAL COMMENTARIES DEDUCED FROM THE MORPHOLOGY OF THE HUMAN BODY. By Prof. Achille De-Giovanni, Director of the General Medical Clinic, University of Padua. Translated from the second Italian Edition by John Joseph Eyre, M.R.C.P., L.R.C.S.I., D.P.H., Cambridge. Cloth. Price, \$4.50. Pp. 436, with illustrations. New York: Rebman Company, 1910.

INVESTIGATIONS ON BENGAL JAIL DIETARIES. By Capt. D. McCay, M.B., B.Ch., B.A.O., I.M.S., Professor of Physiology, Medical College, Calcutta. No. 37, Scientific Memoirs by the Officers of the Medical and Sanitary Departments of the Government of India. Paper. Price, Rs. 2-6-0 or 4s. 3d. Pp. 226. Calcutta: Superintendent Government Printing, India, 1910.

BIER'S TEXT-BOOK OF HYPEREMIA AS APPLIED IN MEDICINE AND SURGERY. By Prof. Dr. August Bier, of Berlin. Only authorized translation from the sixth German revised edition by Dr. Gustavus M. Blech, Professor of Clinical Surgery, Illinois Medical College. Cloth. Price, \$4. Pp. 439, with 39 illustrations. New York: Rebman Company, 1910.

THE DISEASES OF WOMEN. A Handbook for Students and Practitioners. By J. Bland-Sutton, F.R.C.S., Eng., Surgeon to the Midsex Hospital, and Arthur E. Giles, M.D., B.Sc., Lond., F.R.C.S., Edin., Surgeon to the Chelsea Hospital for Women. Cloth. Price, \$3.25. Pp. 554, with 127 illustrations. New York: Rebman Company, 1910.

LECTURES ON COSMETIC TREATMENT. A Manual for Practitioners. By Dr. Edmund Saalfeld, of Berlin. Translated by J. F. Halls Dally, M.A., M.D., Physician to the St. Marylebone General Dispensary. Cloth. Price, \$1.75. Pp. 186, with illustrations. New York: Paul B. Hoeber, 69 East Fifty-ninth Street, 1910.

PULMONARY TUBERCULOSIS AND SANATORIUM TREATMENT. A Record of Ten Years' Observation and Work in Open-Air Sanatoria. By C. Muthu, M.D., M.R.C.S., L.R.C.P., Associate of King's College, London. Cloth. Price, \$2. Pp. 201, with illustrations. New York: William Wood & Co., 1910.

MARITIME QUARANTINE. By Leland E. Cofer, Assistant Surgeon-General. Public Health Bull. 34, U. S. P. H. and M.-H. S. Treasury Dept. Paper. Pp. 64, with 25 illustrations. Washington: [Superintendent of Documents] Government Printing Office, 1910.

LEHRBUCH DER UROLOGIE, MIT EINSCHLUSS DER MÄNNLICHEN SEXUALEKRANKHEITEN. Von Dr. Leopold Casper, Universitätsprofessor in Berlin. Paper. Price 15 marks. Pp. 575, with 221 illustrations. Berlin: Urban und Schwarzenberg, 1910.

AN INTRODUCTION TO THE STUDY OF HYPNOTISM, EXPERIMENTAL AND THERAPEUTIC. By H. E. Wingfield, M.A., M.D., B.C., Cantab., Consulting Physician, Royal Hanpts County Hospital. Cloth. Price, \$2. Pp. 175. New York: William Wood & Co., 1910.

A PLEA FOR THE HOME TREATMENT AND PREVENTION OF SCARLET FEVER. By Robert Milne, M.D., Ch.M., Medical Officer of Dr. Barnardo's Hospitals and Homes for Thirty Years. Cloth. Price, \$1. Pp. 80. New York: William Wood & Co., 1910.

THE SOLUBILITIES OF THE PHARMACOPEIAL ORGANIC ACIDS AND THEIR SALTS. By Atherton Seidell. Bull. 67, Hyg. Lab., U. S. P. H. and M.-H. S. Paper. Pp. 98. Washington: [Superintendent of Documents] Government Printing Office, 1910.

DISLOCATIONS AND JOINT-FRACTURES. By Frederic J. Cotton, A.M., M.D., First Assistant Surgeon to the Boston City Hospital. Cloth. Price, \$6 net. Pp. 654, with 1,201 illustrations. Philadelphia and London: W. P. Saunders & Co., 1910.

GENERAL SURGERY. Edited by John B. Murphy, A.M., M.D., LL.D., Professor of Surgery in the Northwestern University. Vol. II. The Practical Medicine Series. Cloth. Pp. 615, with illustrations. Chicago: The Year-Book Publishers, 1910.

THE EAR AND ITS DISEASES. By Albert A. Gray, M.D., Laureate of the Lenval Prize in Otology, International Medical Congress, 1909. Cloth. Price, \$4.25. Pp. 388, with 123 illustrations. New York: William Wood & Co., 1910.

DIFFERENTIAL-DIAGNOSTISCHE TABELLEN DER INNEREN KRANKHEITEN. Von J. Clemach, in Wien. Paper. Pp. 21. Price, 3 marks. Munich: J. F. Lehmanns Verlag, 1910.

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THE PROPOSED ENLARGED NATIONAL PUBLIC HEALTH ORGANIZATION

A DISCUSSION OF PLANS FOR ITS ORGANIZATION

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CHICAGO

A careful reading of the hearings before both the Senate and the House committees, which have been considering the Owen and other bills, designed to coordinate and increase the public health activities of the general government, compels the conclusion that the committees obtained very little that would be of value in solving the problem before them. That problem may be stated to be the drafting of a law which will give adequate recognition to the importance of national public health work, and at the same time will avoid being made the instrument for exploiting the theories of a great variety of well meaning people whose preference for some particular plan of organization, or enthusiasm for some particular form of research or educational propaganda, is in inverse proportion to their knowledge of the limitations of national health legislation on both the practical and the constitutional sides.

NATURE OF PROBLEM

Broadly speaking, the problem involves two questions: (1) What relation shall the public health organization bear to the other executive organizations of the government? and, (2) How shall the organization be constituted in order to give it at once the greatest practical efficiency within the limits of that relation?

What practical assistance, then, did the committees get from the voluminous testimony presented to them? Let us analyze it and see.

ANALYSIS OF THE HEARINGS

The witnesses fell naturally into two classes, those advocating legislation along the lines of one or more of the pending measures, and those opposed totally or in part to the principle underlying those measures. The second class can be quickly disposed of because, their efforts being directed toward preventing action along the general lines followed by most of the pending bills, their ideas could not be of much use in shaping legislation in furtherance of the object of those measures.

An exception to these must, however, be made in regard to several of the purely legal points raised by Ex-Governor Bates as attorney for certain organizations opposing legislation, for while most of these points were more adroitly than convincingly presented, there were some others which raised questions which, it must be

admitted, had apparently never occurred to many of the proponents of the measures under consideration.

Passing to a consideration of the statements of the proponents, they are readily classifiable into several pretty definite categories. First in point of numbers, those whose statements were largely confined to a presentation of the great importance of expanding the scope of the national public health activities, to an enumeration of the problems for the elucidation of which only national agencies seemed adequate, and to explanations of the enormous advantages, racial, social, educational, economic and sanitary, which would follow the solution of those problems. Some of these witnesses had incidentally something to say about the specific measures under discussion, but for the most part their statements contained nothing that would either inform the committee as to what the government was already doing, what it should do, or how it should do it.

The second class comprised those whose arguments were directed to supporting the fundamental proposition that the proposed increase in governmental activities required the establishment of a new executive department, and, in so far as their arguments may be accepted as valid by the members of the committee, their testimony can be regarded as helpful.

The third class comprised those whose testimony concerned the desirability of transferring to the new organization certain specific activities at present located in existing organizations of the government, and while the witnesses concerned had very little if anything to say definitely as to the extent to which these activities were to be transferred, or the manner in which they were to be correlated with other activities in the organization of either existing or new public health agencies, still, so far as it went, this testimony can be considered as helpful, but like that of the other groups, it did not go far in the direction of constructive suggestions. There were two exceptions to this. Before the Senate committee Dr. Kober and Dr. Wiley did present constructive suggestions as to the activities to be transferred to the new organization, and explanations of reasons for such transfers.

Disregarding the statements of the first class of the proponent witnesses as not of immediate constructive utility, what does all the rest of it yield? First, arguments as to what kind of a head the new organization shall have, arguments which go very superficially into only one of several of the suggestions offered as to his rank, and the method of his selection; second, fragmentary discussion of what agencies shall be under him—nowhere any presentation either of the broad general questions involved in designing the proposed organization, or the systematic study of the details necessary to make that organization effective.

This is in no sense intended as a criticism of the motives or ability of the witnesses. It simply points out the inherent difficulties in properly presenting such questions to a large committee by means of testimony of witnesses, whose very eminence in various lines of human endeavor, while it explains their being put forward as specialists as to certain phases of the subject, causes them to take a rather narrow view of it and necessarily produces a somewhat fragmentary and inconclusive mass of testimony.

Now it appears to me that, aside from the question of who shall be at the head of any organization, the real matters to be considered are what in general terms are the kind of activities that may be properly included in a national health organization at the present time, how far they already exist in one place or another, and how far they must be created *de novo*.

I have kept pretty closely in touch with the discussions of these matters during a good many years, and think it is safe to say that there has been more said about what kind of a head the public health agency should have than about the organization of the agency itself.

PLAN OF DISCUSSION

Deferring for the present the consideration of that matter, I desire to present the question of the organization. I wish first, however, to make it plain that I do not intend to present the matter from the point of view of any particular organization, sect or clique, either official or unofficial. I propose merely to outline a tentative enumeration of the *kind* of activities that might be embraced in the national health organization, to take them up seriatim and set forth to what extent they exist, how far existing agencies are capable of development, to what extent their transfer from their present location would be possible or desirable, and what new agencies would have to be created. I then propose to present the only two possible plans for the organization of the various activities into a practical administrative machine, and lastly, to discuss what sort of a head the whole organization should have.

I am aware, as already stated, that this is reversing the plan followed in most of the discussions of the subject, but I believe it is logically sounder to settle the question of the apex after the dimensions and character of the subjacent pyramid have been settled than to determine the character of the apex and then construct the pyramid to fit it.

Just here it may not be amiss to point out the chief difficulty that has confronted most of those who have undertaken to make detailed plans for a department or bureau of public health, and that is that very few of them have been familiar with the legal aspects of the case, of precedent, existing or former laws, the opinions of the comptroller or the decisions of the courts. Neither, as a rule, have they been familiar with governmental matters. In effect they have undertaken to make plans for an edifice without being familiar with either the inherent structural qualities of some of their materials, or the provisions of the building code under which they must be combined. I do not claim to be exempt from these difficulties myself, but twenty-two years close contact with many of them has given me a fair degree of familiarity with the subject, and I have therefore in the preparation of my plan avoided such difficulties, as far as I could, and endeavored to indicate what they were when I could not avoid them.

In the outline presented in the accompanying diagram I have embodied more or less the suggestions offered by various people at various times as to what should be represented in the new organization, notably those of Dr. Kober and Dr. Wiley before the Senate committee, but the arrangement is my own, the result of many years of practical experience with the advantages and defects of the existing public health agencies of the government.

REASONS FOR TWO GRAND DIVISIONS

In the accompanying diagram it will be noticed that there are two grand divisions—scientific and administrative. There are three reasons for making these two grand divisions.

First.—There are grave constitutional questions involved in administrative action by the government, in many public health matters, questions involving the "police power" and the like, which do not apply to the making of purely scientific investigations and the publication of the results. The latter may be clearly justified as necessary for the information of the government in order that it may intelligently regulate the sanitary aspects of interstate and foreign commerce, or for intelligent regulation of its own governmental agencies, or of areas under its jurisdiction. In organization, therefore, the two sides should be kept distinct in order that legislative action designed to promote the research side be not restricted by the necessity of avoiding constitutional restrictions on administrative encroachment on the powers reserved to the states.

Second.—This arrangement will facilitate the coordination of the commissioned organization of the Public Health and Marine-Hospital Service with the activities to be enlarged, transferred or created. Every impartial student of the subject knows that this service will be the largest single component of any new health organization, and the question has been how to retain the advantages afforded by the coherent, compact and disciplined administrative efficiency of that service, and at the same time secure the necessary flexibility of organization to provide for the utilization of a personnel drawn from a variety of other sources, especially in connection with research work. I do not for a minute mean that the personnel of the Public Health and Marine-Hospital Service shall be confined to the administrative side, or that the personnel drawn from other sources shall be confined to the research side; neither am I trying to champion the Public Health and Marine-Hospital Service under the pretense of an impartial discussion of the subject of the new organization. I only want to point out one of the advantages in keeping the natural grand divisions clearly in view when making legislative provision for the new organization.

Third.—The division follows the customary lines of governmental organization and will therefore promote efficiency.

EXPLANATION OF DIAGRAM

A. SCIENTIFIC SIDE. (FIRST GRAND DIVISION.)

I. Bureau (or Division) of Statistics and Reports.

(a) *Compilations.*

The compilation and publication of the mortality statistics of this country is now done by the Division of Vital Statistics of the Census Bureau, Department of the Interior. The current morbidity and mortality statistics concerning the so-called quarantinable diseases, cholera, plague, typhus fever, smallpox and yellow fever, of both this and foreign countries are

HEAD

B. ADMINISTRATIVE

A. SCIENTIFIC		B. ADMINISTRATIVE	
I. BUREAU (OR DIVISION) OF STATISTICS AND RECORDS.	II. BUREAU (OR DIVISION) OF SANITARY RESEARCH.	I. BUREAU (OR DIVISION) OF QUARANTINE AND IMMIGRATION.	III. BUREAU (OR DIVISION) OF GOVERNMENT HOSPITALS.
(a) Complication.	(a) Laboratory Investigation.	(a) Quarantine.	(a) U. S. Marine Hospitals.
(1) Morbidity.	(1) Bacteriology.	(1) Domestic.	(1) Marine Hospitals and Dispensaries.
(2) Births.	(2) Pathology.	(2) Foreign and Insular.	(2) Medical Officers for Revenue Cutters.
(3) Deaths.	(3) Parasitology.	(3) Personnel.	(3) Physical Examination for Enrollment, Revenue Cutter Service.
(b) Publications.	(4) Physiology.	(c) Accounts.	(4) Examination of Slight and Hearing of Pilots and Masters.
(c) Library of Medicine and Surgery.	(5) Biology—to include the control of vaccine and antitoxin production.		(5) Physical Examination for Saving Service.
(d) Climatology.	(6) Chemistry.		(6) Service to be rendered in time of war.
(e) Advice to State and Local Authorities.	(7) Pharmacology.		(b) U. S. Hospitals and Baths, Hot Springs, Atk. Homes.
	(b) Field Investigation.		(c) Medical Service, U. S. Soldier's Homes.
	(1) Epidemiology.		(d) Hospitals for Immigrants.
	(2) Housing and Social Conditions.		(e) Government Hospital for Insane.
	(3) Workshops, Mines and Industrial Conditions.		
	(4) Study of the Disposal of Wastes.		
	(c) School of Applied Hygiene.		
	(1) For Service Officers.		
	(2) For State and Municipal Officers.		

compiled and published weekly by the Division of Statistics and Reports of the Public Health and Marine-Hospital Service, Treasury Department. The statistics of other infectious diseases, as tuberculosis, measles, typhoid and scarlet fever and diphtheria, are also collected from those states or municipalities which will supply them, and published weekly by the Public Health and Marine-Hospital Service, Treasury Department, together with the tabulated mortality reports of some ninety principal foreign cities, and untabulated mortality reports from a considerable additional number of foreign cities and countries.

Vital statistics are the foundation of scientific public health work, and they are equally essential for the analysis of census returns. On the other hand, international statistics are not properly a part of the census, and both the Census Office and the Public Health and Marine-Hospital Service rely on states and municipalities for their information, but of course the machinery of the Bureau of Vital Statistics is much more complete than that of the other service and its personnel is better trained in the interpretation of statistics on their social and economic sides, and to a lesser extent on their sanitary side. The question may therefore be stated thus: The census work would not be complete without the collection of vital statistics; scientific public health work cannot begin without access to compilation of vital statistics.

Fortunately figures are not like the fruit of scientific research. They can be collected by one agency and interpreted by another in so far as they apply to its own work. Whether then the Division of Vital Statistics should be transferred to the health organization, or whether it shall supply the latter with the results of its work, the mutual division of the publication to be determined by regulations, is not a very essential matter.

(b) Publications.

The existing publications of direct public health interest are the bulletins of the Hygienic Laboratory, the Public Health series of pamphlets, the Weekly Public Health Reports, and the Surgeon General's Annual Report, all issued by the Public Health and Marine-Hospital Service of the Treasury Department; some of the bulletins of the Bureau of Chemistry, Bureau of Animal Industry, Bureau of Plant Industry, and the nutrition investigations of the Experiment Stations, all of the Agricultural Department, and a few of the publications of the Department of Commerce and Labor—especially of the Bureau of Immigration.

One of the greatest fields of usefulness open to a national health agency is in the direction of publishing the results of its various investigations and activities by means of bulletins, reports, lectures, and the like. The enormous good done by the Department of Agriculture along these lines is well known. There may be legal objections to going into a state to do intrastate work, even for interstate purposes, but there can be no objection to the communication to state and local authorities by the government of the results of its own investigations. In so far as it may be deemed wise to transfer, in whole or in part, any of the activities of the last two named departments, of which I will speak later, their publications would logically simply go to swell the number, bulk and value of the first three publications, the research reports falling to the share of the laboratory bulletins, those of the other investigations to the public health series, and the statistical and other matters of immediate interest for national, state and municipal sanitarians to the weekly *Public Health*

Reports. The skeleton of the agency for publications may thus be said to exist already.

(c) *Library of Medicine and Surgery.*

This—known as the Surgeon General's Library—is now in the War Department, but its work has no inherent or essential connection with the work of the Army Medical Corps which now supplies the officers who have charge of its work. It is the great medical library of the country and should logically go into a national public health organization.

(d) *Climatology.*

This is of important public health interest but as the meteorologic data on which it rests are compiled by the Weather Bureau in the Department of Agriculture, it would seem expedient that the collection of the data be left as it is, their interpretation only becoming a duty of the national public health organization.

(e) *Advice to State and Local Authorities.*

As this will be principally by means of publications, and correspondence in explanation and amplification, of them, the work should belong to the Scientific Division.

II. Bureau (or Division) of Sanitary Research.

(a) *Laboratory Investigations.*

(1) BACTERIOLOGY AND (2) PATHOLOGY.

The bacteriology and pathology of public health interest is now done principally by the Division of Bacteriology and Pathology of the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, and the Bureau of Animal Industry of the Agricultural Department.

(3) PARASITOLOGY (to include entomology).

The work on these subjects of most importance from a public health point of view is now done by the Division of Zoology of the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, by the Division of Entomology, to some extent by the Bureau of Animal Industry, and to a less extent by the Bureau of Plant Industry, all of the Agricultural Department.

(4) PHYSIOLOGY.

There is no agency of the government now confined solely to the study of human physiology. Incidentally to the other work it is studied by some of the divisions of the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, the Food and Drug Laboratory of the Division of Chemistry, Agricultural Department, and by the Nutrition Experiments and Pharmacologic Laboratory of the same department.

(5.) BIOLOGY (to include control of vaccine and antitoxin production and nutrition experiments).

This also is studied incidentally as a part of the work of the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, the Bureau of Animal Industry, the Division of Entomology, Bureau of Plant Industry and Nutrition Experiments of the Agricultural Department. The nutrition work only in the latter, and the control of vaccine and antitoxin (by statute) only in the Hygienic Laboratory.

(6) CHEMISTRY.

General chemistry, organic and inorganic, purely as such, is now studied by express statutory direction in the Division of Chemistry, Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, and in the Division of Pharmacology of the same. Chemistry as incidental to food and drug work, in the Division of Chemistry, also incidentally by the Bureau of Plant Industry, and to some extent in other divisions of the Agricultural Department; also in the Laboratory of the Bureau of Standards.

(7) PHARMACOLOGY.

In the Division of Pharmacology, Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department; in the pharmacological laboratories of the bureaus of Chemistry, Animal Industry and Plants Industry of the Department of Agriculture.

The agencies engaged on these branches (laboratory investigations) are so interrelated that the whole matter can best be discussed under one heading. It seems clear that in so far as any of the activities of the bureaus, divisions and laboratories mentioned can be disassociated from the work essential to the performance by the departments containing them of their own particular duties, they should be, in a public health organization. In this category are all the divisions of the Hygienic Laboratory, Public Health and Marine-Hospital Service, Treasury Department, the nutrition experiments and the pharmacologic laboratories of the Bureaus of Plant Industry, Animal Industry and Chemistry of the Agricultural Department, and probably the Purification of Water Laboratory of the Bureau of Plant Industry. The Bureau of Entomology may be in this class but probably its major work is too intimately connected with the Agricultural Department to permit of its transfer.

DIFFICULTIES IN ARRANGING TRANSFER OF SOME OF THE LABORATORY INVESTIGATIONS

When we come to the chemical, biologic, pathologic, physiologic and bacteriologic work of the Agricultural Department bureaus and divisions the subject is most difficult. Much of the work done in these lines by these bureaus and divisions is merely incidental to their real function, and yet is inseparable from it, just as the production of by-products in a manufacturing plant may be of little moment to the business as a whole, and still the business cannot be conducted without developing them. Professor Wiley says that some of the "activities" could be transferred, but does not go into detail. The plain fact is that the problem is one that no congressional committee, or no one person outside of the committee, whether lay or medical, is competent to solve. The reason for this is that the question is neither a wholly legal one nor a wholly scientific one. In a sense it is one of "departmental engineering;" one of deciding just which cogs, wheels and pinions of the department machine can be removed without impairing the efficiency of the machinery or necessitating an expenditure, immediate or future, as great as the saving sought to be secured by the transfer of the parts to some other machine. For the present, however, it may be said that the main controversy rages around the question of what shall be the home of the "pure food" work and the inspection work of the Bureau of Animal Industry of the Agricultural Department, and the nub of the whole matter is whether these activities are "commercial" or "public health" matters. If the so-called "pure food" law is, as one of the most eminent sanitarians in the United States, the late Professor Harrington, has said it was, merely an act to prevent fraud and misbranding, conferring protection to public health as an incident to its execution and not as the object of its enactment, then it belongs where it is; but if it be a public health matter, either primarily or because of the resulting advantages of its enforcement, it should be in the public health organization. The same is true of the activities of the Bureau of

Animal Industry of the Department of Agriculture. One or more witnesses advance the idea that while the inspection, shipping, etc., of live animals was a "commerce" matter and as such should be under the Department of Agriculture, that the slaughtering and post-mortem inspections should be under the public health organization; in other words, that a live steer is an object of commerce, but that a dead one is not. The work of the Bureau of Animal Industry is of incalculable importance to public health, but so it is to the purely agricultural and commercial interests. How shall the dispute be decided? I think there is a way to settle these questions, but it should be properly taken up when we come to the question of legislation.

(b) *Field Investigations.*

(1) *EPIDEMIOLOGY.*

The work done on this subject is practically confined to certain field investigations made in this country by the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, under the direction of the Division of Sanitary Research of that Service, and in the Philippines by the Director of Health of the Insular Government, who is detailed from the Public Health and Marine-Hospital Service, and by the Army Medical Corps as incidental to their duty in the islands.

The general verdict being that the army work must be kept out of the national public health organization, all that would be necessary for the development of this branch of work would be to extend the scope of the authority, at present much restricted, under which the work is now done.

(2) *HOUSING AND SOCIAL CONDITIONS.*

(3) *WORKSHOP, MINES AND INDUSTRIAL CONDITIONS.*

There is considerable work done at present in the direction of investigating the conditions enumerated but it is incidental to the work of several bureaus and divisions of the Department of Commerce and Labor rather than by explicit statutory direction. The Bureau of Mines, Department of the Interior, has been recently created by statute, but it is not known at this time what, if anything, will be done in the nature of sanitary investigation.

There was more or less said at the hearings, and a great deal has been written, about the necessity of putting this work under the jurisdiction of the national public health organization, and I have therefore included the titles among the activities enumerated as proper to that organization, but as I cannot see how administrative work along those lines can be legally done, I have placed the items under the group of subjects which the government may investigate for its own purpose, the results being then available for general information. If the work be done it must be done either by machinery created *de novo* for that purpose in the public health organization by transferring the activities now in the Department of Commerce and Labor to the health organization, or by the Department of Commerce and Labor as at present. The last plan would be the easiest, the second the most difficult, and the first would give the best results, though of course it would produce some duplication of work.

(4) *STUDY OF THE DISPOSAL OF SEWAGE AND WASTES.*

Some work has been done along this line by the Division of Sanitary Research, Public Health and Marine-Hospital Service, Treasury Department, directly, and some indirectly by officers serving on boards such as the Lake Michigan Water Commission; some by

the Purification of Water Laboratory and the Bureau of Plant Industry, Agricultural Department, and very extensive sanitary surveys have been made by the Geological Survey.

It would seem that the Purification of Water Laboratory should come into the public health agency and that means be provided for continuing the present work of the Division of Sanitary Research as above.

LEGAL WARRANT FOR THE STUDY OF THE DISPOSAL OF WASTES

The relations of this subject to the preservation of the navigability of streams, to the preservation of fisheries in waters under the jurisdiction of the general government and to the health of those engaged in interstate water-borne commerce, are so important that it is clearly one of the things about which there would seem no ground for objection from those who question the legality of some of the other work proposed by the advocates of an enlarged public health organization.

(c) *School of Applied Hygiene.*

(1) *FOR INSTRUCTION OF THE PERSONNEL OF THE PUBLIC HEALTH ORGANIZATION.*

(2) *FOR THE INSTRUCTION OF STATE AND MUNICIPAL HEALTH OFFICERS.*

The Public Health and Marine-Hospital Service, Treasury Department, now sends its officers to the Hygienic Laboratory under its own jurisdiction and admits representatives of state boards of health to take this laboratory course.

This has been the practice for a long time and the results have been good, but very limited. The most vital need in a public health way in this country is a supply of men trained for the work of local, county and state health officers. State and preventive medicine is a profession in itself and we can only advance in local health administration as we give appropriate recognition to that fact. If we had local health officers in the villages and rural districts of this country comparable to those they have in England, for instance, the public health problems would be on the road to solution, and there would be little for a national public health organization to do except to make scientific investigations and act as a sort of clearing house for the state boards, but it will be many, many years before that time comes, if it can ever come under our system of government, and in the meantime the interests of the country can be served in no better way than by providing the means by which the state, county, town and village health officers can be instructed in the technical side of their duties. Every man so trained will become a focus of active sanitary improvement within a certain area, and directly as these areas increase in size and number will those conditions disappear whose existence has been the basic cause of most of the agitation for the performance by the general government of many things that should be done by the states. We have been teaching the farmer how to double the number of bushels of grain he can raise to the acre, and why should we not instruct the farmer's local health officer how to cut in half the number of tombstones in the farmer's graveyard? This would have nothing to do with cults or systems of medicine, or the teaching of medical practice. The work of the health officer stops where the practice of medicine begins. He does not treat the sick, he prevents sickness.

How can the government legally maintain a school of applied hygiene to which the men of the state boards of health can come? For of course there is no dispute as to its right to maintain a school for the instruction of its own officers. It is by the same right that it subsidizes sectarian medical schools in Washington to which all may come, but fortunately there is a more direct precedent as in the case of the army schools at Leavenworth, Fort Riley and Fort Monroe for the instruction of its own officers, to which are admitted such officers of state troops as desire instruction. We already have part of the plant and the skeleton of the organization for this work. Whatever this Congress does in public health legislation it can do no one thing of greater potential good than to provide the means by which this work can grow in scope and efficiency.

B. ADMINISTRATIVE SIDE (SECOND GRAND DIVISION).

I. Bureau (or Division) of Personnel and Accounts.

- (a) *Mails, Files, etc.*
- (b) *Personnel.*
- (c) *Accounts.*

This first division of the administrative side of the national health agency follows the existing plan of the organization in the Bureau of the Public Health and Marine-Hospital Service of the Treasury Department.

It is essential for efficient executive administration that all the work covered by the subheads of this section be administered in one part of the organization. Through this division will pass all the correspondence, and in it will be kept all the records relating to correspondence, and to the personnel composing the various bureaus or divisions of the organization. In it will be handled all the accounts and records pertaining to them, and by it will be transacted all the business which the public health agency will conduct with the other executive departments of the government. All matters relating to personnel, employment, appointments, leaves of absence and the like, will be handled by this division.

This does not mean, of course, that correspondence cannot originate in other bureaus, scientific or administrative; it simply means that all incoming mail will be received and distributed through this division, and all outgoing mail, after being signed by the particular administrative officer charged with the authority to sign for the bureau or division in which the letter originated, will pass out through this Division of Personnel and Accounts after being entered, etc. Without such a division it would be impossible for the executive head of the entire public health service to keep in touch with what had originated, or what had been received by any particular bureau or division of the organization. The organization for this purpose now existing in the Public Health and Marine-Hospital Service of the Treasury Department is capable of being readily expanded to any extent that may be desired.

II. Bureau (or Division) of Quarantine and Immigration.

(a) *Quarantine.*

(1) *DOMESTIC.*

(2) *FOREIGN AND INSULAR.*

All quarantine functions of the government are now entrusted to the Public Health and Marine-Hospital Service of the Treasury Department, and for

the purpose of carrying on the work that service contains two divisions: 1, the Domestic Quarantine, and 2, the Foreign and Insular Quarantine.

This division is purely one of convenience for the administration within the bureau. Under these divisions the service operates all the maritime quarantine stations of the Pacific coast and practically all of the Atlantic coast except that controlling the two great ports of Boston and New York. The law authorizes the government to take over the control of any state quarantine when the authorities of the state in question request it to do so, and provides for the compensation of the state for the plant turned over. In a few instances inspection stations are maintained by cities, although the government may maintain a station covering the navigable water leading to that city. In addition the government, through the Public Health and Marine-Hospital Service, has charge of the maritime quarantine of the Isthmus of Panama, in the Hawaiian Islands, in the Philippines and in Porto Rico, and maintains a considerable number of inspection stations in different parts of the world for the inspection and treatment, disinfection, etc., of vessels bound for the United States. There are forty-four quarantine stations on the coast of the United States operated by the Public Health and Marine-Hospital Service; twenty-seven insular quarantine and inspection stations, and thirty-three inspection stations in foreign ports. In addition to this the Domestic Quarantine Division has charge of all questions which arise in connection with the interstate transmission of disease and the management of epidemics.

(b) *Immigration.*

The medical inspection of all immigrants arriving in this country is now made by the medical officers of the Public Health and Marine-Hospital Service of the Treasury Department, who are detailed for that purpose. This is at present done under the immediate control of the Division of Domestic Quarantine as above. The officers detailed for this duty receive their orders from the Public Health and Marine-Hospital Service, and are paid through that service, but out of the funds of the Immigration Service, Department of Commerce and Labor. They report directly to the Division of Domestic Quarantine, Public Health and Marine-Hospital Service, and are subject to the regulations of that service. This system has been in existence twenty years and has been found to be very satisfactory. In addition, at times when the importation of such diseases as cholera, plague, etc., are especially to be feared, officers are stationed at foreign ports, attached to the consulates, for the purpose of inspecting immigrants who are about to embark for the United States, and a similar inspection is maintained at all times at such places as Yokohama, Hong Kong, Amoy and Naples.

(c) *International Sanitary Relations.*

At present the government maintains international sanitary relations under the International Sanitary Convention of Paris, of which the United States is one of the ratifying powers, and through the International Bureau of American Republics. The relations with European countries are maintained through the International Bureau of Public Hygiene of Paris, established under Article 181 of the above mentioned convention, in which bureau the United States government is represented by an officer of the Public Health and Marine-Hospital Service delegated for that purpose. The international relations with Mexico and the Central and South American states are maintained by means of international sanitary conventions which have been held from time to time under the auspices of the International Sanitary

Bureau of American Republics, of which convention the Surgeon General of the Public Health and Marine-Hospital Service of the Treasury Department is the chairman.

At present the international relations are still very largely in a formative state, but the rapid progress being made in the matter will make it necessary very soon that provision be made in the national health organization for a subdivision to handle the questions arising in connection with international relations, and when such a division or subdivision is established it would be logically located in the bureau or Division of Quarantine and Immigration.

(d) *Management of Epidemics.*

As already stated, the management of epidemics is at present in charge of the Division of Domestic Quarantine of the Public Health and Marine-Hospital Service of the Treasury Department, and would be naturally continued in any enlarged public health organization in that division, as a subdivision of the Bureau of Quarantine and Immigration.

(c) *Philippines and Isthmus.*

As already explained, the maritime quarantine in the Philippines and on the Isthmus is under the direction of the Division of Foreign and Insular Quarantine of the Public Health and Marine-Hospital Service of the Treasury Department, but in addition, there are very important public health functions performed by the same division in connection with the government of the Philippine Islands. The public health work there, as distinct from the maritime quarantine, is under the control of the Insular Government through an officer known as the Director of Public Health. At the present time this position is filled by an officer detailed from the Public Health and Marine-Hospital Service of the Treasury Department who combines with his function of Director of Health under the Insular Government, the position of Chief Quarantine Officer for the Philippines under the Public Health and Marine-Hospital Service of the Treasury Department. This arrangement is at present not a matter of law but is subject to change by the President.

In any new or expanded national public health agency the functions described above under the second heading of the administrative side (Quarantine, Immigration, International, Sanitary Relations, Managements of Epidemics, and Philippines and Isthmus,) would necessarily have to be carried on exactly as at present. As far as I can recall, none of the plans which have been suggested for such a new or expanded organization have suggested the addition of any functions in regard to matters connected with quarantine, immigration, international sanitary relations, management of epidemics, or the Philippines and Isthmus, and as the present arrangement works satisfactorily and is capable of future expansion by presidential regulations, and without the need of special legislation, it does not seem to be necessary to make any suggestions in connection with it.

III. Bureau (or Division) of Governmental Hospitals.

(a) *U. S. Marine Hospitals.*

- (1) MARINE HOSPITALS AND DISPENSARIES.
- (2) MEDICAL OFFICERS FOR REVENUE CUTTERS.
- (3) PHYSICAL EXAMINATION FOR ENLISTMENT, REVENUE CUTTER SERVICE.
- (4) EXAMINATION OF SIGHT AND HEARING OF PILOTS AND MASTERS.

- (5) PHYSICAL EXAMINATION FOR LIFE SAVING SERVICE.
- (6) SERVICE TO BE RENDERED IN TIME OF WAR.

The management of the U. S. Marine Hospitals is now under the charge of the Division of Marine Hospitals and Relief, Public Health and Marine-Hospital Service of the Treasury Department, and this division also has charge of the other five classes of work mentioned above. Through it are provided the medical officers for the Training School of the Revenue Cutter Service and those who serve on the larger seagoing cutters. At the present time about 10 per cent. of the officers of the lower two grades of the Public Health and Marine-Hospital Service are serving at sea under these details. In addition the service makes all the physical examinations for enlistments in the Revenue Cutter Service and provides the medical officer for examining and retiring boards of that service. The examinations as to color sense, acuteness of vision and hearing, which are now prescribed by law for all applicants for license as masters or pilots of vessels, are conducted by this service, as also are the annual physical examinations made for the crews of the Life Saving Service. In the marine hospitals are cared for the sick of the merchant marine, the Revenue Cutter Service, the Life Saving Service, the civilian crews of the vessels of the Quartermaster's and Engineer's Departments of the Army and of naval colliers, officers and crews of the vessels of the Coast and Geodetic Survey and Mississippi River Commission. In addition the hospitals care for foreign seamen on the request and at the expense of the government to which they belong. The law also provides that in time of war the president can make use of the commissioned medical officers of the Public Health and Marine-Hospital Service of the Treasury Department as he may determine, and such officers have rendered services of this character in action during the Spanish War, and in the Philippine Insurrection.

As it is presumed that the functions outlined above will continue to be performed in the same manner under any new or expanded public health organization, it does not seem necessary to make any suggestions in connection therewith.

(b) *U. S. Hospital and Baths, Hot Springs, Ark.*

The present situation at the Hot Springs of Arkansas is that the United States Hospital there is maintained for the treatment of officers and men of the Army and Navy, and the officers of the Public Health and Marine-Hospital Service, and is under the control of the War Department. Some of the bills now pending propose to transfer the conduct of this hospital to the new or expanded public health organization, and if such action be taken, the management of the institution would logically come under the bureau or division charged with the operation of similar government institutions. I have therefore placed it under this heading.

(c) *Medical Service, U. S. Soldiers' Homes.*

At present the medical service at the Soldiers' Homes is under the control of the Department of the Interior, but if transferred to the control of the new or expanded public health agency would naturally come under the jurisdiction of the bureau or division under which I have placed it.

(d) *Hospitals for Immigrants.*

At present the hospitals for immigrants are under the control of the Bureau of Immigration, Department of Commerce and Labor, but the medical officers are detailed from the Public Health and Marine-Hospital Service of the Treasury Department, so that they too, if transferred as suggested in some of the bills, would be placed under the bureau or division which we are considering.

(d) *Government Hospital for the Insane.*

The management of the Government Hospital for the Insane is at present vested in the Board of Trustees and is under the direct control of Congress.

Whether or not the various institutions enumerated under the last four subheads (*b*, *c*, *d*, and *e*) should be transferred to the control of the national public health organization is a grave question. The Government Hospital for the Insane is practically the local insane institution for the District of Columbia, although it also cares for the insane of the Army and Navy, and the beneficiaries of the Public Health and Marine-Hospital Service. I am unable to express an opinion as to whether it would be best to leave matters as they are, or transfer this institution to the public health organization. The same is true in regard to the Hot Springs Hospital and the soldiers homes. I think, however, that as the medical inspection and treatment of immigrants is now done by the Public Health and Marine-Hospital Service it would be logical to transfer the management of the hospitals themselves to that service, or rather to the national public health organization of which the Public Health and Marine-Hospital Service will be a part. The present arrangement, it is true, works fairly well, but it certainly would seem desirable that the general management of a hospital should be under the same jurisdiction as that which supplies the medical service.

IV. Bureau (or Division) of Applied Sanitation and Sanitary Engineering.

(a) Interstate Sanitation.

(1) WATER COURSES.

Except for the extensive surveys made by the Geological Survey the only work done in this connection at the present time is indirect, as detailing officers of the Public Health and Marine-Hospital Service, Treasury Department, for service on bodies such as the Lake Michigan Water Commission, or incidental to investigations by the same organization of typhoid outbreaks, or by the Hygienic Laboratory of the same service as in the Sanitary Survey of the Potomac Watershed, and in daily bacteriologic examinations for the Washington filtration plant.

(2) RAILWAYS.

Except in connection with the management of epidemics by the Division of Domestic Quarantine, Public Health and Marine-Hospital Service, Treasury Department, the government exercises no control over the sanitation of railways.

(3) SHIPPING.

In times of threatened invasion by such diseases as cholera the Division of Foreign Quarantine, Public Health and Marine-Hospital Service, Treasury Department, has charge of the sanitary conditions of vessels sailing from foreign ports for this country, and in times of epidemics the Division of Domestic Quarantine of the same service, assumes charge of interstate shipping. The general control of regulating the sanitary conditions on vessels, air, space, ventilation, food and water supply, character and amount of medical attendance, medical supplies, etc., is under the charge of the Bureau of Navigation of the Department of Commerce and Labor.

How far the government may go in the direction of controlling the sanitary conditions in navigable interstate lakes and streams is a legal question. Under the notes in connection with the subheading "Disposal of Wastes" I have pointed out several reasons which seem to me to justify the opinion that contamination of navigable waters is a proper matter for government regulation, and it is not necessary to repeat them here. Certainly it does not seem reasonable that on the Great Lakes, for example, the general government should prevent the states which draw their drinking water from the lakes from exercising any control over the contamination of those waters by shipping, and yet be power-

less itself to take steps for the prevention of the contamination. With this in view I have included water-courses as a proper matter to be embraced in the plan for a national public health organization. It must be admitted, however, that in the case of non-navigable interstate waters the matter can hardly be one for regulation by the general government. Fortunately the Constitution, while preventing direct relief by the government in such cases, has provided a way for adjusting the matter by a congressionally sanctioned agreement between the states concerned, and the court decisions in the Georgia-Tennessee copper fumes case have indicated how a state may force another to either cease polluting a mutual water supply or else join in an agreement for the regulation of the matter. As to the right to regulate the sanitary conditions on interstate railways, there does not seem to be any dispute. The Act of 1893 authorizes the Secretary of the Treasury to make rules and regulations necessary "to prevent the introduction of infectious and contagious diseases from one state or territory into another state or territory" but imposes no penalty. It would seem that all that is needed is the rectifying of this omission to give a national public health organization all the law it needs. In the matter of shipping, it seems clear that execution of the portions of the "Passenger Act" which relate to sanitary matters on vessels should be taken out of the jurisdiction of the Bureau of Navigation, Department of Commerce and Labor, and placed under the control of the national public health organization.

(b) Public Buildings.

There is at present no central agency in charge of the sanitary condition of Public Buildings. The Division of Sanitary Research, Public Health and Marine-Hospital Service, Treasury Department, has done some work in connection with the ventilation of the Capitol, and has investigated by a commission the conditions as to tuberculosis in the buildings of the executive departments in Washington, but the tendency has been for each department, or in the case of the very large buildings, the superintendent or custodian, to look after its own sanitary affairs.

It would seem to be desirable that the national public health organization should have at least advisory control of the sanitary problems which arise in connection with the large public buildings—possibly by means of a system of inspections; possibly by merely providing a method by which the superintendent or custodian could apply to the national public health organization for advice, or expert assistance. I doubt very much if it be expedient at present to try to do more than this. Every executive department will have a natural hesitancy in surrendering any actual control in its own territory, while they might be glad to get advice on occasions. In time the control of the sanitation of government buildings should be placed under the control of the public health organization.

(c) Assistance to State and Local Authorities.

Assistance in public health matters other than by publications, correspondence or laboratory research has, as far as I am aware, been given very rarely, if ever, by national agencies to the public health authorities of states and municipalities, except by the bureau of Animal Industry, Agricultural Department, and by various divisions of the Public Health and Marine-Hospital Service of the Treasury Department. The former agency had done a great deal of field work in aid of states, as, for example, tuberculin testing of dairy cattle destined for particular states, or in investigating outbreaks of animal diseases for.

or in cooperation with, state authorities, the most extensive work being in connection with Texas cattle-fever. The work of the Public Health and Marine-Hospital Service along these lines has been very extensive in the direction of assuming direct charge of local epidemics, and by taking up, at the request of state or local authorities, the field investigation of some particular condition. The work along the latter lines has been, of late, especially extensive.

OMISSION OF CERTAIN ACTIVITIES

In the outline given for the organization of a new or expanded public health organization I have purposely omitted, for reasons given below, a great many of the things which have been mentioned in the hearings and discussions as properly within the scope of such an organization, and included therein by the terms of some of the pending measures, as: education, child investigation, medical service of Indian reservations, etc.; and some, such as the establishment of biologic standards, the study of venereal prophylaxis, and the like, because putting them in the law is equivalent to directing that some of the divisions of the organization shall study the things they would be created to study, and furthermore those who are to be in charge of the work to be done should be given an opportunity to develop it along the lines which experience may prove to be best fitted to secure a coherent and logical plan of advancement and *pari passu* with the training and development of the necessary personnel. To prescribe too minutely the subjects for investigation and control will immediately result in an uneven and unbalanced development. Education, child study and the like I have omitted because I have tried to keep in view throughout, the fundamental idea that the law creating the new or expanded public health organization should be drawn in such a way as to avoid as far as possible raising the issue of interference with the powers reserved to the states, and so I have tried to keep pretty close to the lines of precedent in public health legislation. It would be most unfortunate to have some important portion of the new law promptly set aside by the courts. When the new organization is once firmly established and functioning it can be cautiously expanded by amendments which, if found unconstitutional, could be dropped without damaging the legal foundations of the main structure.

CONSTRUCTION OF NEW ORGANIZATION

Coming now to the question of how the machinery of the new organization shall be constructed to secure the performance of the duties grouped under the above suggested plan, it would appear that only two plans of organization are possible; to consolidate the activities, whether resulting from transfer or creation, with the Public Health and Marine-Hospital Service under some form of departmental or bureau organization, or, to consolidate such transferred or created activities into the Public Health and Marine Hospital-Service under either the present form of control or under some new arrangement.

THE QUESTION OF THE HEAD

This brings us to the question of the head. Four plans are possible:

1. A cabinet officer presiding over a new executive department.
2. An assistant secretary reporting to the head of one of the existing departments

3. A Director-General of Public Health, or a Commissioner of Public Health, of permanent or semipermanent tenure of office presiding over an independent organization and with a status similar to that of the former Commissioner of Agriculture, and reporting directly to the President.
4. A permanent, or semi-permanent, director-general or similar official reporting directly to the cabinet minister at the head of one of the existing executive departments.

ADVANTAGES AND DISADVANTAGES OF EACH PLAN

The first plan is the one about which most has been said, and beyond doubt a just appreciation of the magnitude of the interests involved must lead to the conclusion that these interests are worthy of having a department. Unfortunately there seems to be much opposition in administrative and congressional circles to any increase in the number of the executive departments. The possibilities of overcoming this opposition, and the methods by which it might be overcome, are outside of the scope of this paper, so I shall only briefly mention the advantages and disadvantages of this plan. The principal advantages would be that a departmental organization would give a status to its chief that would enormously increase his prestige with Congress, and his influence and authority in dealing with international and interstate questions; that it would considerably simplify some of the questions arising in connection with the transfer from other departments of the larger activities which have been the subjects of discussion, since there would be no questions of precedence to settle, and would enable the department head to deal directly with other department heads in obtaining data resulting from the researches of agencies working in these departments, in securing cooperation in the larger administrative questions, and in facilitating such joint activities—as for instance the immigration inspections. The disadvantage is that the choice of the department head would not improbably be influenced by geographic or political considerations rather than by the qualifications required of a man who would preside over a semi-scientific department.

The second plan, an assistant secretary reporting to the head of one of the existing departments, seems to be open to some very serious objections. The assistant secretary would have to submit questions of policy, legislation or appropriations to the attention of the President and Congress through the intermediary of a department head who might, through lack of either knowledge or sympathy, fail to present them to the President and to Congress in a manner best calculated to secure the ends in view. Whatever department were chosen, the work for the prosecution of which the department in question was created, and for his fitness in administering which the department head had been chosen, would naturally engage most of that chief's attention and lead, unintentionally, perhaps, but still inevitably, to a neglect of the public health interests. If, on the contrary, the department chief took an active interest in the public health work it is exceedingly improbable that he would have the training and knowledge necessary to make the results of his interest and interference advantageous. Moreover, it would involve the possible danger that external interests, political or commercial, would exert pressure on the departmental chief that might be exceedingly disadvantageous to the interests of public health efficiency. Furthermore, it would involve a good deal of lost motion in the machinery of the public health organization by the interposition of an additional

gearing between the machine, as such, and the source of its power in presidential and congressional support.

The third plan seems to be, by all means, the one to be followed, but unfortunately is opposed to congressional policy, which is strongly against creating agencies independent of one of the executive departments. It would avoid all the disadvantages outlined in the discussion of the first and second plans, and would possess some advantages of its own, the chief of which would be that it would promote efficiency by definitely fixing the personal responsibility for it. If the plan of organization is followed by which the transferred and newly created agencies are consolidated *with* the Public Health and Marine-Hospital Service, it would, by the independence and dignity of the position of the director or commissioner, attract a better equipped class of candidates than a subordinate assistant secretaryship of anomalous position, and render it much less likely to be the reward for political services. If, on the other hand, the plan is adopted of consolidating the transferred and newly created agencies *into* the Public Health and Marine-Hospital Service the Surgeon-General of that service will either fill the position of director, or commissioner, himself, *ex-officio*, or will be the executive officer of the organization, serving under the director or commissioner, very much as the Chief of Staff serves under the Secretary of War, and in either case the advantage of long tenure of office for the executive will be added to the advantages above enumerated as inherent to the third plan.

As already stated, I am of the opinion that the third plan suggested is the best at the present time, but it is directly against the pretty general trend of congressional policy and probably would arouse as much, or even more, opposition than the establishment of a new department. For this reason I offer the fourth plan of organization. It would be the easiest from a legislative point of view, since it would be practically an amplification of the existing relations of the Public Health and Marine-Hospital Service with its departmental chief, but with the very important difference that its head would by law report directly to the head of the Department concerned, and not, as often has been the case in the past, to a second or third assistant secretary.

The permanency of tenure would eliminate most of the objections inherent to the plan of having an assistant secretary, but the difficult personal equations in handling the chiefs transferred along with activities under their control in existing departments would remain to be solved, and undoubtedly this form of organization would not satisfy many who are actively engaged in the present agitation for increase in the national public health activities.

SUGGESTIONS AS TO DRAFTING BILL

In conclusion, a few suggestions are offered as to the general plan to be followed in drawing a bill designed to embody in law the plan for such an organization as I have outlined:

First, the law should be as brief as possible, and should be confined to the declaration of certain basic legislative intentions, leaving the details to be arranged by regulations to be promulgated by the President. Such expression of legislative intentions should include: (a) Provision for the creation of a department, bureau or service, as may be determined on, with a declaration of the fundamental principles in accordance with which the new department, bureau or service is to be organ-

ized; i. e., either for a consolidation of the activities to be transferred or created with, or into, the Public Health and Marine-Hospital Service; (b) provision for the head of the new department, bureau or service, whom he shall be, how he shall be appointed, his tenure of office and compensation; (c) an enumeration in the fewest possible words of the duties to be performed, as, for instance, "the investigation and management of all matters relating to the public health as now or hereafter authorized by law or by this act"; (d) provision for the continuance of the personnel of the various existing agencies affected, for their salaries, allowances, etc., and provision for the personnel of any newly created agencies; (e) authorization for the necessary clerks, etc., without stating salaries or numbers; (f) continuance in general terms to the various agencies of the special authorities and duties now vested in them by law; (g) continuance of the availability of all appropriations, funds, etc.

Second, it should for the present only transfer or consolidate existing or new agencies that are not the subjects of serious dispute on grounds of either expediency or constitutionality. The Pharmacological Laboratories of the Bureau of Chemistry, Animal Industry and Plant Industry, Agricultural Department,¹ and the Library of Medicine and Surgery, War Department, are illustrations of the first class, and the study of the disposal of wastes with reference to their effects on interstate, water borne commerce and the health of those engaged therein, is an illustration of the second class.

Third, in order to provide for the question of existing activities, the expediency of transferring which is the subject of much dispute, as for example, certain parts of the Bureau of Animal Industry, Treasury Department, a provision should be inserted authorizing such transfers within one year by Presidential order and providing for a commission or committee of departmental chiefs, or delegated subordinates, who shall advise the President of their findings after investigating each case referred to them, but whose advice shall not be binding on him. The law creating the Department of Commerce and Labor contains a provision somewhat similar to this, but if in the case under consideration this is thought to savor too much of the delegation of legislative authority, the President might merely report his findings for the approval of Congress. All this sounds reasonably simple but it will involve a careful study of a large number of existing laws and no little legislative ingenuity to secure the results wished without the loss of something desirable.

There is much diversity of opinion as to the expediency of having an advisory board associated in any way with the management of the new agency. It is urged that it would strengthen the hands of the director or commissioner in public estimation if he had the support of a board of distinguished and disinterested advisors of national reputation, and perhaps it would, if he had it; but suppose that for reasons political, professional or personal, the board were not disinterested? On this point I venture to obtrude my personal opinion that no board should be given authority to meddle in any way with the management of the organization as a whole.

One more expression of opinion I desire to make, concerns, in general terms, the character of the activities to be transferred to the new agency. No activity should, for the present, be transferred whose work is of such a

1. See testimony of Dr. Wiley, p. 110, Senate Hearings on S-6049.

nature that its incorporation in a national public health organization will lead at once to the concentration on that agency, its personnel and its work, of the interested attention of powerful commercial and political interests. No matter how great the economic advantages resulting from public health work, nor to what extent it is clothed for constitutional reasons in the garb of commercial justification, the fact remains that its real objects are altruistic and humanitarian, and with these the politics of personal interest will not mix, though they may discolor them.

In conclusion I deem it proper to state that this article is in no sense inspired by Surgeon-General Wyman or to be construed as an expression of his opinions. It has not been submitted to him, nor has he been informed of its contents. It owes its publication simply to a personal desire to provide a basis for a discussion of a question that is of vital interest to the public and fundamental to the health and lives of the people of the United States.

EXTRACAPSULAR FIXATION OF THE MOVABLE KIDNEY*

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The word "extracapsular" is used in the title of this paper to imply fixation of the kidney by a method entirely external to the tunica fibrosa as distinguished from any method that implies either invasion of that tunic or surgical injury to the kidney itself.

The further significance of the term as it is here used may be made clear by a brief description of the essential features of the operative procedure that I have employed for the last several years—indeed, since 1904—for the anchorage of the pathologically movable kidney,¹ as follows:

TECHNIC OF EXTRACAPSULAR NEPHROPEXY

1. The patient is placed in the classical position on the well side with a firm pad, preferably pneumatic, under the same side. The equally classic incision about 1 cm. below the costal margin and about 10 cm. in extent is made obliquely downward and forward. This dissection is carried through the wall by cutting with the exception that, to the extent that may be found practicable in each individual case, the obliquus externus, the obliquus internus and the transversus abdominis muscles are separated and drawn apart by the finger rather than divided by the knife. In this way the capsula adiposa of the kidney is reached.

2. The capsula adiposa is a most important structure in my procedure, and the very first point that I wish to emphasize is that extreme care must be taken to separate it from its relations to the abdominal wall, to the extent that such relations may have survived the displacement. Care must be taken not to separate the capsula adiposa from the tunica fibrosa.

3. The kidney with its capsula adiposa attached to it is then lifted to the surface. In carrying out this manipulation it may be and generally is necessary first to deliver the upper pole of the organ through the operation wound, for reasons that I shall later explain.

4. The next step in the operation consists in wiping away the globular fat, much or little, from the con-

nective tissue stroma of the capsula adiposa. This stroma, likewise important in this procedure, will be found arranged in very distinct and essentially parallel striae extending obliquely downward and forward from the lower pole of the kidney. The manipulation of wiping the fat from its meshes is best carried out by the use of gauze, care being taken not to separate these striae from their attachment to the tunica fibrosa.

5. Gauze is now likewise employed to apply vigorous friction to the tunica fibrosa in its upper zone where the capsula adiposa but rarely invests it; but if it does the fat should be wiped away if possible without disturbing the attachments of its basic connective tissue striae. This friction to the tunica fibrosa should be continued until the upper zone shows small punctate hemorrhages over its entire area.

6. The kidney is now left for a few moments while any remnant of the capsula adiposa that may have been left adherent to the abdominal wall is entirely wiped away with gauze.

7. A nest—*nidus renalis*—free from fat—having thus been secured, the kidney is slipped back as nearly in *situ naturalis* as it will go without force.

8. The connective tissue striae of the capsula adiposa are then divided transversely at a distance of from 1 cm. to 2 cm. from the lower pole of the kidney. The stump thus formed on the renal side is stitched by chromicized catgut to the inner surface of the upper margin of the operation wound while the lower stump is similarly attached to the inner surface of the lower margin of the operation wound.

9. The operation wound itself is then entirely closed by laminated sutures. Drainage, being unnecessary, is, of course, not employed.

In explanation of the various steps that I have described, more particularly those that are peculiar to this procedure, I beg to offer a few observations:

THE CAPSULA ADIPOSA AND ITS CONNECTIVE TISSUE STRIAE

The connective striae of the capsula adiposa, so essential to this procedure, require a few words of explanation, particularly as they, in an aggregate sense, and as an anatomic structure have so far very generally escaped recognition as being of practical importance. In my previous published remarks² on this structure—I have come to recognize these striae as an anatomic element—I stated that when I first noticed it I thought it was adventitious, and probably, of inflammatory origin and that I had used it because it was convenient and seemed to lend itself to unipolar fixation.

It now seems, from a recent somewhat exhaustive research of the literature, that my experience was not singular. Thus Hahn,³ whose observation extends back to his inauguration of the practice of kidney fixation in 1881, says that "fibers run from the tunica fibrosa in front and behind to the subperitoneal fascia." Newman, of Glasgow observes⁴ that "frequently in long-standing cases the fat becomes infiltrated with connective tissue, making it tough and fibrous and when this altered capsule is stitched to the parietes the kidney can be maintained in its position without suturing the organ itself." Carwardine, of Bristol, says:⁵ "It is common in cases of wandering kidney to meet with strong fibrous bands some of which require scissors or scalpel for their divi-

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.
1. Tr. Am. Assn. Obst. and Gynec., 1906, xix, 19.

2. Tr. Am. Assn. Obst. and Gynec., 1905-1906.

3. Deutsch. Ztschr. f. Chir., 1902, lxxvii, 354.

4. Glasgow Med. Jour., 1904, Series 4, lxi, 345 and 418.

5. Bristol Med.-Chir. Jour., 1905, xxiii, 24.

in some cases becomes subnormal, in others stands around 100 F.; in a few runs high. Vomiting with acetone odor of breath occurs in a good proportion and is absent in others. The urine is limpid and free. Albumin has been present in some and absent in others of the few cases from which urine could be obtained. Urine from three cases was submitted to chemists for nitrogen estimation, and in each instance the report was that the ammonia nitrogen was high. Jaundice was absent in every case.

During the period of labored breathing the breath feels cold to the hand held in front of the nostrils. This has been interpreted, whether rightly or wrongly, to mean volatile substances thrown out in the respired air. During this period of labored breathing, too, soot, in our locality, lines the interior of the nostrils, being, of course, mechanically deposited by the air as it rushes in. Some of the children noticed little unless their attention was especially attracted, but the impression given was that they were directing attention rather to getting air, as deep labored breathing without interruption, hour after hour, calls for attention on the part of any conscious breather.

OUTCOME

In fatal cases death occurs in from 48 to 70 hours after the onset of labored breathing, 55 hours being about the average.

In the cases recovering, the duration of the stage of labored breathing is about the same. Death seems to occur from exhaustion. Convulsions have not been noted and coma has not developed till within a few hours of death.

The mortality in a series of thirty-two cases, occurring in my own practice or in consultation, has been 71 per cent.

POST-MORTEM APPEARANCE

Post-mortem examinations have been made in nine of the cases. The findings have been negative, as to the gross appearance of the organs, with the exception of the liver and the mucosa of the intestine; these were injected in some cases, in others not. The liver usually showed yellowish areas on the surface, extending downward to varying depths. The gall-bladder in all cases has been distended with dark, green, ropy bile. Microscopic examination of the organs has only shown fatty degeneration of the liver. Neither the heart, the kidney nor the muscles have been found fatty in any instance.

TREATMENT

Treatment has varied from eliminative to symptomatic, with the employment of strychnin in good doses, epinephrin and hypodermoclysis of normal salt solution. I am under the impression that treatment avails little when a sufficient injury has been done the system, but that hypodermoclysis is of decided value when the injury is not sufficient to be lethal.

CASE HISTORIES

Of the fourteen cases encountered during the last three years only three will be cited.

CASE 1.—Infant L., male, white, aged 10 months; breast fed; large and plump; never previously ill. The only food given other than breast milk was a few feedings of farinaceous food at irregular intervals. For four days prior to onset of symptoms the mother had noted that the bowels were loose, but as the baby did not seem sick she paid no attention to it. At 2 a. m. January 6, the mother found the baby breathing in a labored manner. The attending physician, Dr. Pressly,

did not reach the child till 9 a. m., seven hours later, when he found it very ill and restless, respirations 48 per minute, temperature 101. Hypodermoclysis was employed in the afternoon and I saw him in consultation at 9 p. m. The respirations were 40, pulse 120, rectal temperature 99.5. The liver was palpable below the border of the ribs. Thursday the child was reported to have progressed fairly well, probably as the result of the salt solution, but on the next morning, Friday, was called to see him again to find him in desperate straits. Respirations were 56, labored, and with an expiratory moan. Pulse not perceptible at wrist, rectal temperature 100, extremely restless. Liver enlarged to over an inch below border of ribs. The child was conscious, was taking water freely, and the kidneys had been acting well; the abdomen was not distended. The child died at 2 p. m., sixty hours after onset of symptoms. In this case vomiting occurred during the first twenty-four hours and did not recur. Post-mortem one hour and twenty-five minutes after death; rigor mortis fairly well developed; discoloration of posterior surfaces of the body; abundant adipose tissue under skin of abdomen. Liver extends two and a half inches below ensiform cartilage in median line and one inch below free border of ribs; yellowish areas over surface of liver, decidedly lighter in color than remainder of organ, gall-bladder distended with a dark green, ropy bile; stomach distended with gas; contains some mucus and the mucosa was congested in places; intestine empty except for the same dark green bile found in the gall-bladder; kidneys apparently normal; lungs normal and pink in color; heart normal; liver weighs 360 grams.

CASE 2.—Infant L., male, white, aged 2½ years. The child was breast-fed until weaned at the end of the first year. April 30 the child had two bloody actions, for which castor oil was prescribed by the attending physicians. Friday the mother reported the child so much better that he was not seen. On Saturday the attendant again called to find him with labored breathing, but only thirty to the minute. Vomiting began at midday. After twenty-four hours' vomiting of the water given, coffee grounds vomitus began. The patient was seen in consultation Sunday afternoon at six. Respirations 35, labored and deep; pulse feeble and irregular, 135; liver one and a half inches below free border of ribs; attendant states that he examined the liver the day previous and it was not enlarged; that he examined it again that morning, Sunday, and found it an inch below the ribs with the child vomiting every few minutes a coffee-grounds material, and calling piteously for cold water, which would be promptly rejected. The child was pale and washed out, very restless; mental state clear; kidneys active.

Seen again next morning at eight, its condition was much worse; respirations 44, pulse not countable at wrist; temperature 101.4; vomiting of coffee grounds material still continued. The child called for water but would not respond to questions or apparently take notice of things about him, and died later in the day, 55 hours after onset of symptoms. No post-mortem.

CASE 3.—Infant B., male, white, aged 15 months; breast raised and still nursing. Lately the child had been given buttermilk in addition. It was a well-nourished baby. Seen in consultation April 21, 1910, a history was obtained of slight colitis from the seventeenth, four days previously. The child was not sick enough to cause any concern till the day previously when he developed labored breathing and vomiting. There was obstipation from the onset of symptoms; respirations were 34, labored and deep; pulse 128, easily compressible; abdomen moderately distended with gas, liver an inch below free border of ribs and very tender to pressure; acetone odor of breath quite marked; breath cool to hand; temperature 99.5; mind clear. Hypodermoclysis of normal salt solution, strychnin and epinephrin were recommended. Next day the respirations were 44, temperature 100, pulse 140. Respirations were not so labored as on preceding day, but on least exertion child was badly winded; acetone odor less marked; liver extends two inches below free border of ribs.

On the next day, April 23, the respirations were 33 and not labored, temperature 100.4, pulse 140; liver retracted somewhat from day before, and edge less sharp to finger. On April

24 the child was better in every way: liver not palpable below border of ribs; barley gruel recommended.

A good report was received April 25, except that the barley water had disagreed, causing nausea and had been discontinued. April 26, in afternoon, there was a slight tendency to labored breathing noted on any exertion. Barley gruel and orange juice were given once, followed by vomiting, which kept up during the night and showed coffee-grounds material. When seen April 27, condition was desperate and had been so during the preceding night and that morning. The breathing could be heard as soon as one neared the room during the early morning hours. Respirations 40, pulse 160, child very restless; but vomiting had ceased; liver was felt one and a half inches below ensiform; tympany quite marked over abdomen.

On April 28 respirations 28 and not labored; pulse 150, temperature 100.2; tympany lessened. The child's condition was better and nourishment was again given, consisting of a half ounce of buttermilk. Medication consisted of strychnin and epinephrin. After the obstipation of the period of extreme illness, mucous stools reappeared and persisted during a tedious convalescence not complete to date.

This child received no nourishment from April 18 to 24, when barley water was given and disagreed. It was given barley water again on April 26, when vomiting was precipitated which came nearly being fatal. Buttermilk was given on the 28th and the child was nourished regularly thereafter. This recovery from a condition showing a mortality of over 71 per cent., and other recoveries from similar conditions under enforced starvation of from five to seven days, would seem to merit some attention, in view of the rôle assigned to starvation in the production of acidosis.

As to the nature of these cases, I have come to hold, tentatively, that they belong in the acidosis group; that a colitis, usually of mild type, through the production of some toxin, cripples the liver cells and, as a consequence of impaired liver function, products of faulty, incomplete metabolism are swept into the circulation and carried to the fixed tissue cells, which are dependent, of course, on the blood for proper nutritive and oxidative substances.

Dr. James Ewing¹ has presented elsewhere a thorough discussion, in which he freely admits the difficulties inherent in a question that involves the many unsettled problems of metabolism, and I think every one who has made any study of the question will fully agree with him. He divides cases of acidosis into two main groups: one without fatty degeneration, as represented by diabetic acidosis, and one with fatty degeneration, represented by the toxemia of pregnancy, delayed chloroform poisoning, Eek's fistula, cyclic vomiting in children and poisoning by hematoxic immune serum.

Only recently a professional neighbor was relating the history of a case of toxemia of pregnancy in a woman who had passed successfully through five pregnancies. With my own case in mind, he was asked if dysentery had preceded the onset of toxemic symptoms, and he replied in the affirmative. This question was further suggested by the history of a non-pregnant adult female, in whom a most serious acidosis was precipitated apparently by a mild dysentery.

If we are right in assigning our series of cases to the acidosis group represented by toxemia of pregnancy or by delayed chloroform poisoning, we have traveled only a short way on the road of explanation. We have not explained why the liver enlarges so rapidly; we have not explained the fatty degeneration of the liver, the changes

in the bile, the obstipation, nor the factors involved in the air hunger.

Hematoxic immune serum injected into an animal produces fatty degeneration or necrosis, according to the dosage. A ligated hepatic artery results in increase of fats in the liver cells, according to Holmes and Pearce, but the explanation of these results leads to as many theories, practically, as there are investigators. So long as physiologic chemistry fails to account for all the processes involved in the functions of the liver, so long as physiology fails to agree on the functions of the liver, so long as the rôle of the internal secretions is undetermined and the intimate processes of cell nutrition, including tissue respiration, are matters of conflicting theories, it is not to be expected that definite conclusions will be formulated, either by the laboratory worker or the clinician.

Considerable effort was made to discover the explanation of the air hunger met with in all of this series of cases.

Haldane and his coworkers have apparently demonstrated that hyperpnea, labored breathing, results from carbon dioxid tension in the respiratory center, and that the threshold at which the carbon dioxid excites the center may be lowered by acid or other products resulting from the want of oxygen.

No cyanosis exists in any of the cases, as would pertain if the blood contained excess of carbon dioxid, and there is no lack of oxygen in the alveolar air inspired, so that some other factor must be involved beside want of oxygen in the alveolar air.

An original worker writes in a personal letter:

There may be incomplete oxidation in the presence of abundant oxygen in the blood, because the factors—enzymatic or otherwise—which normally cause oxidation are defective. This would, of course, be defective metabolism. Just what the factors of oxidation are, is the dark problem. The intermediate acids combine with the bases of the respiratory center (Na_2CO_3 , NaHCO_3 , NaHPO_4 , etc.) and the free CO_2 resulting, remains in the center, causing increased tension and hyperpnea.

And thus we seem to be carried back to the original question involved in acidosis—the production of intermediate acids. Whatever the ultimate explanation of the air hunger, it appears reasonable to think that this explanation will mean the settlement of the controversy between those physiologists who hold respiration to be accounted for by the laws governing diffusion of gases and those who hold vital cell action to be involved.

ABSTRACT OF DISCUSSION

DR. JOHN ZAHORSKY, St. Louis: I have seen altogether five cases that fitted this syndrome exactly. All were fatal. I have studied this syndrome from a variety of standpoints, but a year ago I had a patient that put me on an entirely new track. This little boy, two and a half years old, had recurrent attacks of cyclic vomiting and in one of these attacks there seemed a little indigestion and the mother gave him a dose of calomel. This deep breathing developed and the liver swelled enormously, extending to the umbilicus. The pulse was not very full, the child was very sick and I was afraid it would die. That suggested how this syndrome might be explained, i. e., by acute dilatation of the right side of the heart. I could not explain how this liver could swell to twice its normal size except by edema or congestion, and passive congestion seemed to be the cause in this case, and that could most easily be explained by an acute dilatation of the right ventricle. We know that deep breathing is one of the symptoms of dilatation or weakness of the right heart. It is true

1. Ewing, James: Acidosis and Associated Conditions, Arch. Int. Med., 1908, ii, 330.

that there was no marked cyanosis or swelling of the veins of the upper extremity, but as there is diarrhea and vomiting with the loss of a large quantity of fluid, we can understand how there might be this accumulation of blood in the liver and yet not such an accumulation of blood in the upper extremities. One boy had spasmodic croup with severe suffocative attacks. I was asked to intubate the child and on examination no marked obstruction in the larynx was found, but he had this very deep breathing which was mistaken for obstruction. The liver was enormously enlarged, reaching almost to the umbilicus. Another child had cardiac disease. He suddenly had some severe symptoms and developed this deep breathing and also had this swollen liver. I have concluded that this deep breathing and enlarged liver are due to an acute cardiac dilatation which may be incidental to any acute disease, such as acute gastritis, acute gastro-duodenitis or colitis, or severe vomiting forcing the blood into the heart and stretching the right ventricle. So, while I originally considered Parke's syndrome a definite disease, I believe it is merely a group of symptoms occurring in many diseases. The acidosis is due to faulty metabolism in the absence of carbohydrates, and is not the cause of the disease.

Dr. ISAAC A. ABT, Chicago: I am already on record as having seen a number of these cases, I think a dozen or more. In nearly every one I have had an autopsy performed. In the first case, the child of a physician, the symptoms were pretty much as outlined by Dr. Parke. The child falls suddenly ill, vomiting, rapid respiration, rapid, small pulse, and goes gradually into a coma and last of all develops symptoms of obstruction of the bowel, due probably to extreme atony. They have all shown at autopsy, uniformly, fatty degeneration of all the organs. Dr. Ricketts, who did the autopsy work in the first case, thought that possibly the child might have eaten matches, so profound and extensive was the fatty degeneration. We found not only acetone but leucin and tyrosin in the urine. Dr. Ricketts found that the heart muscle and the intima of the vessel walls showed fatty changes. I think this is a syndrome that is a pathologic entity and depends on some grave toxemia. The acidosis is merely a symptom, and it is of no more importance than the rapid breathing, the rapid pulse, or the mechanical obstruction of the bowels, and it would be wrong to ascribe too much importance to it. I discussed these cases with a pioneer physician of Illinois and he suggested their close resemblance to the disease described as milk-sickness in cattle. Inquiring more closely into the subject one finds that milk-sickness or trembles bears a striking similarity in symptoms to those which Dr. Parke noticed in his patients.

Dr. THOMAS D. PARKE, Birmingham, Ala.: There was no coma in any of these cases and there was no mechanical obstruction. There was dysentery and poor digestion and though the bowels did not act during the period of labored breathing, after this stage of labored breathing passed off, the bowels became loose again. I am sure there was no mechanical obstruction in any single case. I am sure not only from the post-mortems that I made but from the patients that recovered. There is a good deal more in the acidosis problem yet to be cleared up and I think you will agree with me if you will study the paper by Dr. Ewing in the December, 1908, issue of the *Journal of Experimental Medicine*. My conception is that the injury done by the toxins of this intestinal trouble cripples the liver-cells and when you get crippling of the liver-cells, the products of intermediate metabolism are carried into the general circulation and produce the air hunger. Dr. Ewing attaches immense importance to this fatty degeneration. He says that these studies of the last few years show the immense importance of fatty degeneration. But we do not know just what work the liver has to do. I have been unable to find any physiologist who could tell me the complete function of the liver. I do not know whether the trouble is in the liver-cells or in the blood that is in the liver, and until we can get thoroughly worked out the full physiology of the liver we shall not know its pathology.

SYPHILITIC DISEASE OF THE ARTERIES OF THE CENTRAL NERVOUS SYSTEM WITH DETAILED REPORT OF A CASE*

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The importance of arteritis or endarteritis as a lesion of syphilis has become well appreciated, especially since the writings of Huebner, Baumgarten, Marchand, Rieder, Nonne, and others. Only recently, however, has sufficient emphasis been placed on the tendency of specific arteritis to appear shortly after primary infection, and on the relative frequency of isolated involvement of the arterial system as compared to the other rather more familiar forms of nervous syphilis implicating the meninges and surrounding structures of the central organ, etc.

As regards the time elapsing between the occurrence of the initial sore and the intervention of symptoms of arterial disease, the tendency of recent writers on this subject, especially Nonne, of Hamburg, is to insist on the very early development of arteritis after the primary infection. The latter author quotes a case in which symptoms of cerebral softening occurred even before the primary sore had healed.

Not only is arteritis now looked on as an early process of syphilis, but it is even held that this lesion in its pure form practically does not occur in very late syphilis, and that nearly all cases occur within three years after the chancre.

Again it is necessary to recognize the frequency of arteritis as one of the grand diseases of the nervous system assignable to syphilis, because both treatment and prognosis are altogether determined by the nature of the processes in the nerve tissues associated with the arterial disease. Only by arriving at a proper conception of the lesions in such instances can the medical attendant properly interpret the phenomena occurring. It is rather probable that disappointment arising out of too sanguine expectations from the application of proper specific treatment, under the mistaken assumption that a gummatous or exudative process is being attacked, in instances of softening and hemorrhage in the central nervous organ, has been the occasion for physicians discarding the correct diagnosis of syphilitic disease, and consequently neglecting the effective agents of treatment subsequently.

It is unnecessary to dwell on the nature of the changes occurring in the arteries, because these are quite well understood. It is important only to recall that the process is practically always a proliferation of the intima with consequent encroachment on the lumen of the vessel and mechanical interference with the passage of the blood-current. And we do not have to wait for complete occlusion of the vessel in the expectation of symptoms, but a very important group of syphilitic nervous diseases is caused by mere diminution of the blood-supply to the tissues, giving symptoms of neurasthenia, transient pareses, and the like, not extending to the gravity of organic disease. In such instances the alterations in the arterial walls, especially in the smaller vessels, further interfere with the interchange of nutritive fluids, thus contributing to the so-called functional disturb-

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ances. As a matter of course, it is very important to interpret such symptoms correctly and early, for proper treatment is then most hopeful.

When actual hemorrhage, softening, or thrombosis occurs, the pathology and symptoms are in no wise peculiar to luetic arteritis, unless we regard the tendency of syphilis to select the branches of the middle cerebral artery as especially great. In my experience with a number of cases, I have found that the involvement of the arteries to the striate body, thalamus and the bulb especially frequent. The interesting lesions seen in the photographs of specimens from the case I am presenting, emphasize this. In this instance the lenticulo-striate group of arteries were almost all completely obliterated, leading to practically complete death of these structures on the right side and pronounced softening on the other.

I deem it somewhat foreign to the purpose of the present paper to more than refer to the fact that syphilis is the remote cause of aneurismal processes very late after the infection, operating in conjunction with agencies tending to raise the blood-pressure, such as atheroma, cardiac and renal diseases. This latter observation, however, serves in this connection to emphasize again the great tendency of syphilis to inflict wide-spread damage on the arterial tree.

I shall finish these few generalizations with reference to a case in which I was fortunate enough to follow the symptoms over a period of twenty months, the case finally coming to necropsy. Although I was not able to get the necropsy done in the best manner possible, and to prepare the specimens completely, I have succeeded in securing photographs and slides of two transverse sections which display the most pronounced lesions in a fairly satisfactory manner.

History.—The patient was a white man, aged 36, single, bartender by occupation, and came under observation March 26, 1908. Aside from the fact that the father was alcoholic, the family history was negative. The patient was exceptionally well as a child and during adolescence. In fact, there was no illness of consequence until he acquired syphilis. Beginning at the age of about 25, he led a very dissolute life, drank alcohol steadily and went on occasional week-end drunks; used tobacco and drank coffee to excess. During September, 1906, he contracted a venereal sore and had well-marked secondaries. Treatment was instituted and kept up in a desultory way for two years after appearance of secondary symptoms. There was seemingly no further manifestation of syphilitic activity until November, 1907, when the patient sustained a stroke of partial hemiplegia of the left side. The hemiplegic stroke was, however, preceded by dizziness and malaise for several weeks; and on treatment the weakness on the left side improved greatly, but never got entirely well. A short time before my observation, he became dull and confused, laughed and cried without cause, and showed other signs of disturbed mentalization.

Examination.—On first physical examination (March 26, 1908), the following observations were made: All deep reflexes were exaggerated, but those of the left arm and leg were most pronouncedly so; ankle clonus partially developed on left, exhausting after a few seconds; the left epigastric and hypogastric reflexes were absent; Babinski sign present on the left, Gordon sign on the right; Romberg test positive. It was impossible to test sensation carefully on account of the mental state, though there was obviously diminution of pain sense on the left side of the body. There was marked weakness of the left arm and leg. With the hands, 38 kilos on right and 12 on left, could be registered on the dynamometer. There was no sign of facial weakness on either side. Tongue deviated slightly to the left; pupils equal, round, active to light and accommodation. There was very slight swelling of the optic disks with obscuration of the edges and what appeared to be

a mild toxic retinitis. The patient articulated awkwardly as if the tongue and lips were stiff on voluntary movement, and the voice was nasal. The soft palate sagged, but was observed to move on forced voluntary effort, not, however, on stimulation. The heart and other important viscera were normal; urine examination being likewise negative. The bowels were obstinately constipated and the tongue had a white coating. Control of the bladder was somewhat impaired, though this could not be determined well on account of the mental state. No hardening could be detected in the peripheral arteries. The mental state was one of universal reduction of all the psychic aptitudes. Patient was unable to tell where he was or anything about his situation. On attempting to answer questions, there was an overplay of the facial muscles of expression and articulation, and the effort would almost invariably end in a fit of crying. Words were enunciated in a clumsy way, amounting to dysarthria. The tendency to weeping obviously did not signify affective depression but the emotional instability seen in cases of gross lesions of the basal structures, especially the optic thalamus and striate bodies. The patient had no care for personal cleanliness. These and numerous other faults of behavior seemingly have their explanation in the mental state of bewilderment and negativism present. Specific treatment was given, but was so poorly tolerated that it had to be used very mildly. The digestive functions seemed to be in abeyance, constipation was obstinate and the general state grew worse.



Fig. 1.—Syphilitic endarteritis.

Subsequent Course of Disease.—May 4, 1908: General state somewhat worse than on last observation; patient required careful nursing, drooled saliva and refused food. Emotional instability continued; patient articulated badly; the gait was now somewhat more spastic; condition of the eye fundus remained the same; Babinski sign was present on both sides. Specific medication increased in quantity.

June 9, 1908: The general state was observed to be improved; patient would now articulate his words better, knew that he was in the hospital, took his food better and gained in weight; spasticity in extremities was much diminished; Babinski sign present on both sides; deep reflexes greatly plus, most pronounced on left.

June 16, 1908: Condition quite the same as on previous observation, possibly a bit better. Patient left the hospital.

During the month of October, 1908, patient was seen casually on the street and seemed almost normal. The gait was unimpaired and he asserted that he could use his extremities as well as ever. He felt strong and expressed intention of resuming his occupation. He was readmitted Aug. 15, 1909, having become practically helpless in all four extremities.

October 2, 1909, the following observations were made: Patient's condition was worse than when first seen. He cried almost continually; signs of the old left hemiplegia were again prominent, and the right side was also weak and spastic; the arms were stiff and awkward on voluntary movement; pronounced weakness in both arms and legs, but most pronounced in left; deep reflexes greatly exaggerated on the

left, less so on the right; sustained ankle-clonus on the left; Babinski sign present on both sides. Sensation could not be tested on account of mental state. No athetoid movements or tremors present. The mental state was the same in kind as that seen on first observation, though of greater depth. The patient lay quietly and discharged the functions of his body without concern, requiring to be fed like a child. Articulation was scarcely intelligible, and he had great difficulty in swallowing. Specific treatment was again instituted, but totally disagreed and had to be withdrawn.

Nov. 28, 1909: Patient was bedridden and could scarcely swallow food from involvement of deglutitory muscles. The mental state was one of negativism, due to the profound reduction of all cerebral functions. He still continued to cry when aroused. Babinski sign was present on both sides; sustained ankle-clonus on left. The optic disks remained partially obscured as noted on previous observations. The patient moved his extremities in an awkward, ataxic, spastic manner; was obstinately constipated and abutments were retracted. Patient was unable to swallow and seemed not to assimilate nourishment given by stomach-tube.

He died December, 1909, from inanition.

Clinical Diagnosis.—Syphilitic endarteritis of the central nervous system, with focus of hemorrhage or softening at first in the right internal capsule; later similar involvement of the left capsule. Probably multiple small foci about the hemi-

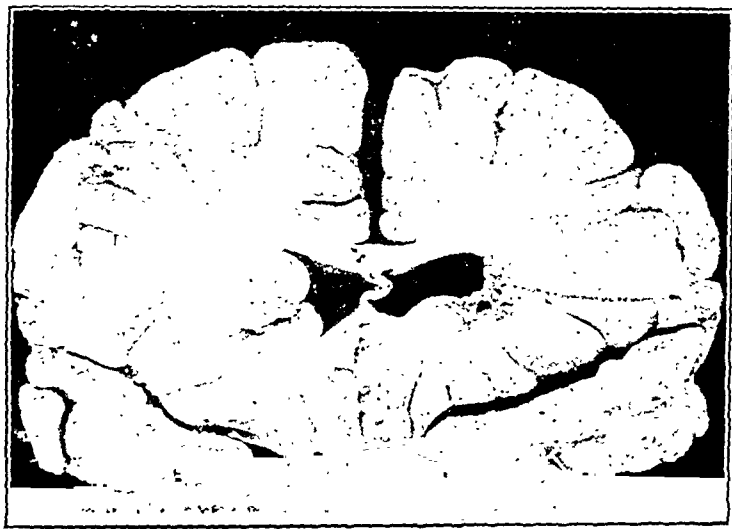


Fig. 2.—Syphilitic endarteritis.

spheres from rupture or obliteration of the smaller terminal vessels.

Post-Mortem Findings.—There were found slight universal thickening of the dura, and wide-spread opacities of the pia with cystic formations in places. The walls of the large vessels at the base were observed to be thickened, especially the middle cerebral and its branches. Areas of softening were seen in the region of the two striate bodies, most marked on the right, where the lesion appeared older and involved the thalamus and practically all structures in the lenticulo-striate region, apparently destroying the majority of the fibers of the capsule. These were the two chief gross lesions, but numerous minute foci of necrobiosis were seen in the cortex and subcortical substance of the hemispheres.

Transverse sections of the spinal cord showed the left half of this organ to be distinctly less in volume than the right. The pyramidal tracts were seen to be greatly atrophied on naked eye inspection, apparently from secondary degeneration alone.

On account of the difficulties under which our observations were made, no Wassermann reaction could be done and no search for spirochetes made; but the clinical history and appearances of the lesions found were so overwhelmingly in favor of syphilis as to leave no reasonable doubt.

I realize the great interest that might have attached to a more detailed observation of the symptoms in the case and the exhibition of microscopic sections of the

brain and cord in further illustration of the interesting pathologic lesions present. Lack of opportunity prevented my doing the former. I hope to complete the pathologic work later.

I have the pleasure to express my thanks to Drs. Daspit, Duval, and Couret, who have so kindly assisted me in securing and preparing the specimens.

1328 Second Street.

ABSTRACT OF DISCUSSION

DR. WILLIAM W. GRAVES, St. Louis: Dr. Hummel referred to the frequency of early arterial degenerations as a manifestation of syphilis, especially as pointed out by Nonne in recent years. This great clinical fact is one which is not appreciated. Early arterial degeneration after a syphilitic infection, no matter how carefully treated, is the one preeminent clinical fact on which one may oftentimes hinge a provisional diagnosis. Signs of arterial degeneration, occurring in a man before his time, and one being able to exclude metallic and other poisons as the cause, are in the majority of cases due to a former syphilitic infection. I base this conclusion not on that finding alone, but there are other clinical findings demonstrable in cases of syphilis two or more years after the infection, which are almost as constant as the arterial changes.

During the last few years I have given much attention to syphilis of the nervous system and post syphilitic conditions, and I have made careful studies not only of the arterial systems of syphilitics, but also of their nervous systems; and from these studies it may be stated, though I may be considered radical when I do state it, that there are but few patients, however carefully we may treat them, who two years after a syphilitic infection will not show organic changes as demonstrable by a clinical consideration of the nervous system. Indeed during the secondary manifestations of syphilis in some cases which I have had the opportunity of studying, I have found distinct sensory loss, especially to pin pricks. This loss may and probably does remain throughout the life of the individual. A syphilitic may lead a healthful life, but he reacts badly. The individual who has had a syphilitic infection must be regarded as a blighted individual, reacting poorly to stresses and strains. Such individuals when studied, in addition to cardiovascular changes, show in the majority of cases changes in the oculo-pupillary apparatus and in the nervous system.

DR. GEORGE A. MOLEEN, Denver: I have been greatly pleased with the case report that has just been made, and I believe that this condition is too often neglected by reason of its frequent occurrence. The first phase that appeals to me in this paper is the evidence of neglected syphilis which has been the cause of the arterial degeneration. I have seen quite a number of cases of cerebral arterial degeneration in Colorado, and almost invariably the history of the syphilitic infection carries with it an incompleting treatment, or a treatment extending usually not over two or three months. The length of time of specific treatment, I think, is often in direct relation to the occurrence of an arteritis. I have seen in one instance the occurrence of a syphilitic arteritis within three months of the initial sore. In other cases they have gone, as has been the experience of others, as long as fifteen or twenty or more years. The mental confusion in the case just cited, I take it, is an expression of the general toxic effect of the syphilitic virus, which is further evidenced by the neuritis and the retinitis, and these are not commonly, if ever, present in pure arterial lesions. I do not believe that many such cases should occur if the proper mercurial treatment were established and continued, and particularly continued when once established. I think with Osler that it is lamentable that we should find arterial lesions in specific cases like these, which are so amenable to mercurial treatment.

DR. THEODORE DILLER, Pittsburg: There is a good deal of thickening of arteries, a good deal of arteriosclerosis, that is not syphilitic. For instance, I very often find thickening of arteries in boys with dementia præcox, and I believe that there

is a good deal in the inheritance of bad arteries, arteries which degenerate early, and I feel that we ought to be not too hasty in concluding that thickened arteries indicate specific disease, even in young persons.

DR. E. M. HUMMEL, New Orleans: Fourteen months elapsed between the time of the initial sore and the stroke of hemiplegia which this man suffered, which in the light of subsequent developments was undoubtedly assignable to softening in the right capsule due to obliterating endarteritis. I wish to insist again on the early occurrence of signs of specific endarteritis, dating from the time of the initial sore. Dr. Nonne in his comprehensive treatise, "*Syphilis und Nerven-System*," insists on this repeatedly, and comes to the conclusion that syphilitic processes of this kind always occur practically within three years of the time of the infection. I did not wish to be understood as confusing specific endarteritis with arteritis of other causation, and I quite agree with Dr. Diller that there are numbers of other kinds of endarteritis, but I think, everything considered, there is no doubting the specific character of the arteritic process in this case. There is one point that I should like to mention further in connection with the case, and that is that it is noted in the clinical symptoms that this man underwent great improvement under specific treatment and got practically well. The explanation of that is interesting. It is probable that there was a large exudate around the site of the original softening, and that it was absorbed under specific treatment. One thing further in this connection and of interest here is that when a person under the age of 40 sustains a stroke of hemiplegia or any other sign of gross focal, brain or spinal cord trouble, coming on suddenly, indicating either hemorrhage or softening, the presumption is very strong that such an accident at so early an age indicates the presence of arterial disease of specific causation and the case ought not to be deprived of a therapeutic trial with antisyphilitic agents.

A NEW METHOD OF VACCINATION.

SIGMUND WASSERMANN, M.D.
CLEVELAND

All physicians will agree that with the vaccination method now in vogue, using the scarifier (*Impf-Lanzette*), we can never measure the extent of the trauma and therefore the resulting lesion. As a rule, with experience, we may strike just about the right thing, but in the case of a restless child an unexpected motion on our part or on the part of the patient makes us go beyond the intentional limits. A further point, which has not been considered sufficiently, is that such a large abraded area is a receptacle of a large quantity of vaccine lymph causing too strong a local reaction. Such and other drawbacks can be prevented by a new method, which I herewith present. This method revolves around the instrument ~~to be used~~, which is the scarifier devised by Professor von Pirquet for his cutaneous tuberculin test. It is a small chisel with the sharpened edge of which the drilling of the skin is surprisingly painless, hardly perceptible by children.

MODUS OPERANDI

1. Clean the arm with water and soap, and then rub it thoroughly with alcohol.
2. Apply the vaccine lymph (pulp) on the skin by expressing a capillary tube or by smearing the lymph, in case one prefers the points.
3. Point the chisel perpendicularly to the surface of the skin and press against it with a few rotary movements or, as a child said, "use it like a screw-driver."

These few rotary movements suffice to produce both an abrasion of the skin and an implantation of a minimum amount of vaccine virus.

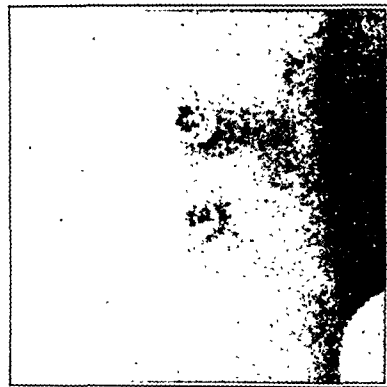
Within a minute a little wheal, a typical, reddish urticarial papule with a central depression, is formed. It is a vasomotor reaction produced by the blunt pressure of the instrument.

I always cease the operation when the superficial layers of the epidermis appear to be removed and a pinkish hue shines through from beneath (vessels of the *pars papillaris corii*). I have never seen a trace of blood oozing from the scarified skin, which is by no means an attribute of a successful vaccination, as some believe.

DEVELOPMENT OF THE PUSTULE

The course of development is as follows: The traumatic papule spoken of fades away in a few hours and the incubation period begins. Nothing is seen or felt until about the end of the first week, when a little elevation is formed around the point of trauma. A very small area of redness may be seen at this time. This papule transforms itself into a vesicle within the second week, and becomes mature at the end of second or the beginning of the third week.

The most striking peculiarity of this form of vaccination is the mild and slow development, so that neither children nor parents are aware of the effects of the vaccination until the pustule is well formed. In the



Vaccine pustules (new method). Strictly circular, of geometric accuracy. Although very close, their individual halo can be distinguished, no confluence having taken place. Surrounding tissue is only slightly involved.

majority of cases, no subjective symptoms worthy of being mentioned are complained of during the first week (itching). During the second and third week, when the pustule is ripening and the area congested, there is seldom felt a pain in the axillary region. I have not yet witnessed an involvement of the whole arm, as the reactive congestion is small and keeps within the nearest boundaries of the pustule; neither does a bacterial infection take place readily. I have not had a single case showing these little accidents, as in previous years, although the vaccinations performed this year surpassed all those of previous years, on account of the smallpox scare in Cleveland. I explain this in the following way:

Scarifying, especially crosswise, means dissemination of little traumatic lesions over an unlimited area. After the inunction a crop of little pustules will sprout, and a confluence takes place to form a large unbounded pustular surface with an extensive area (halo). The crust later formed cannot completely cover the wound. It is not uniformly thick to resist the exuberant fluid; the scab cracks; matter overflows, sometimes resulting in an unnecessary secondary vaccination, and (what is of more

importance) making an open door for a bacterial invasion. "A scarification produced by rotary movements is more advantageous than scarification by incisions, as it gives a very small superficial wound."¹ These advantages of the drilling method, emphasized by Von Pirquet in his cutaneous tuberculin test, hold equally good of the ordinary vaccination. With this new method, only a single traumatic circumscribed lesion is formed. A minimum of vaccine material is used, and an almost geometrically circular pustule ripens sharply. A crust is formed and covers the underground completely and cover and contents dry down slowly without breaking—the main issue in any uneventful vaccination.

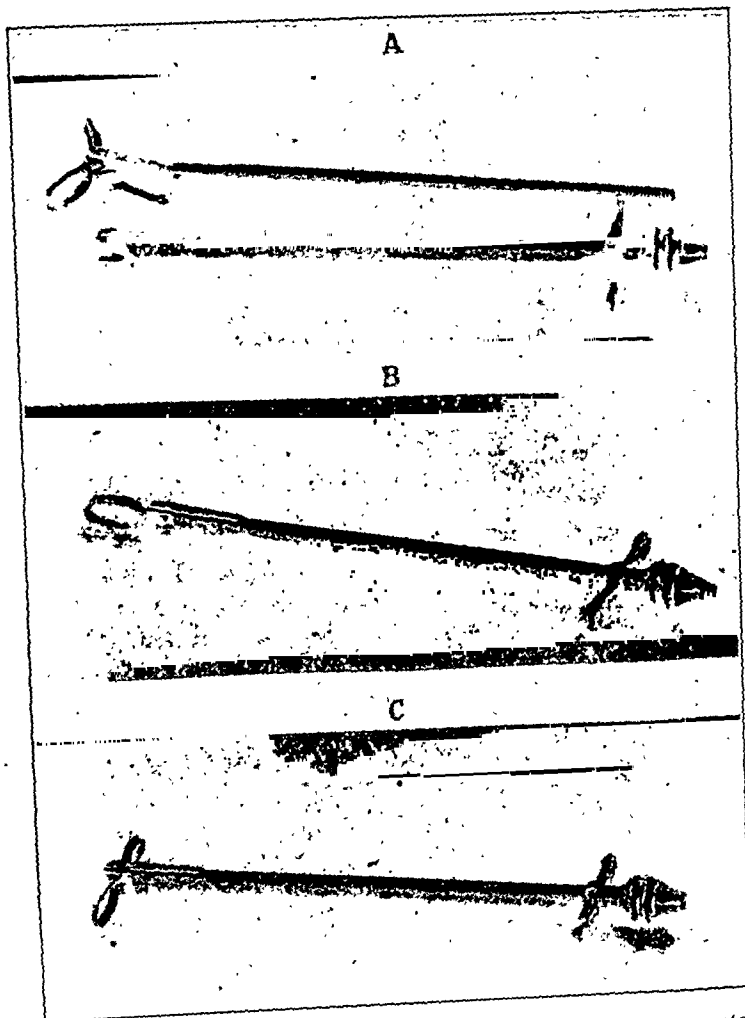
The Majestic, E. Fifty-fifth Street.

A MODIFICATION OF THE YOUNG PROSTATIC TRACTOR

HARVEY A. MOORE, M.D.

Clinical Professor Genito-Urinary Surgery, Indiana University School of Medicine; Attending Surgeon, Indianapolis City Hospital
INDIANAPOLIS

I have used Dr. Hugh H. Young's prostatic tractor successfully in a number of perineal prostatectomies, yet I have found it very difficult of introduction in a few cases and have therefore devised the instrument here illustrated, which is straight and has the advantage of being



Modification of the Young prostatic tractor; A, parts separated for cleansing and sterilizing; B, instrument closed for introduction; C, instrument open for traction.

easily introduced through the perineal opening in the urethra. By turning the thumb-screw the blades are opened at right angles to the shaft, giving the shape and the tractile advantages of the original instrument.

316 Newton Claypool Building.

1. Von Pirquet: *Therap. Monatsh.*, November, 1907.

COBWEB BRAIN

A CONTRIBUTION TO THE PATHOLOGY OF IDIOCY

EDWARD LIVINGSTON HUNT, M.D.,

Instructor in Neurology, Columbia University; Visiting Neurologist to New York City Home for the Aged; Neurologist to the Penitentiary and Workhouse Hospitals; Senior Visiting Neurologist to the Hospital for Nervous Diseases of the City of New York
NEW YORK

The following case occurred in the service of Dr. Robert Abbe at St. Luke's Hospital, New York City. I was called to see the child in the capacity of acting neurologist.

The family were most insistent that something be done to investigate the condition of the child's brain, and therefore urged an exploratory operation.

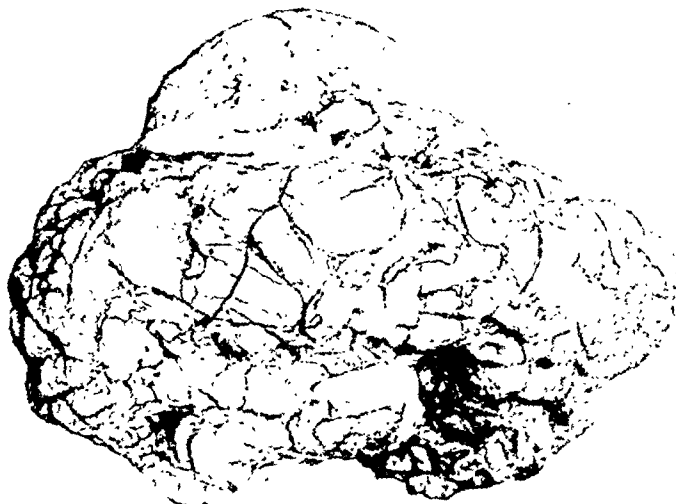


Fig. 1.—Anterior view, showing the appearance of the frontal lobes; cerebellum is above and behind.

History.—Dorothy C., born Nov. 6, 1906, admitted to St. Luke's Hospital Feb. 27, 1910. The labor began on the morning of November 6; the premonitory symptoms were those of placenta previa. The delivery, hastened by high forceps, was completed the same afternoon. The child was rendered conscious only after considerable efforts. The examination made at the time of birth showed an extensive cut over the right eye, and on both right and left sides an immense swelling at the back of the top of the head. The one on the right side was the larger. During the first month the child was kept in an incubator and sustained by nutrient enemata, gavage, and oxygen. For several days after birth the child had periodical convulsions, as was shown by facial distortions and rigidity of the muscles of the face and arms. These convulsions, which were accompanied by cries, lasted three or four minutes and occurred several times in a day. They lasted several days and then gradually disappeared. The child was apathetic, unobedient, and apparently without emotion. The hands were constantly kept clenched. An external stimulus would elicit a cry; it was thought that sight was present. The child gave every appearance, however, of being an idiot.

Physical Examination.—Well-nourished child of 3. The symptoms on admission were as follows: The child did not talk—never had. If laid on her back she would kick vigorously. Sight was undoubtedly impaired, although there was a distinct realization of the change from extreme darkness to light; the sense of hearing was very acute; the sense of pleasure was apparent, as was shown when a familiar voice spoke; the sense of taste was present, as the child rejected certain things and enjoyed others. The legs showed equal development; the use of the right hand and arm seemed to be better developed than that of the left. The color was good. The child could not sit up; if held up the head fell to the side. The skull was asymmetrical, the diameter from the right cheek being greater than that from the left. There was no depression on the surface; the fontanelles were closed. A lighted match produced a spasm of the entire body and for a brief moment caused the eyes to follow it. Immediately after, however,

they began to roam and continued to do so aimlessly. Drooling was frequent. The jaw was constantly in motion as if chewing. Sixteen teeth were present; they projected very little from the gums. There was no glandular enlargement. The ears were normal. The heart, lungs, and abdomen were normal. There was no rigidity of the neck. The limbs were stiff and spastic, showing occasional aimless movements, without apparent coordination. The kneejerks were exaggerated. There was no Babinski and no Kernig sign. A pin-prick caused no pain. Temperature 101.3, pulse 120, respirations 22.

Ophthalmoscopic Examination.—This, made by Dr. C. W. Cutler, showed that both pupils were dilated; the left reacted to light, the right did not. The media was clear; there was a temporal atrophy of both nerves; an irregularity of the choroidal ring and a sharpness of the edges of the nerves.

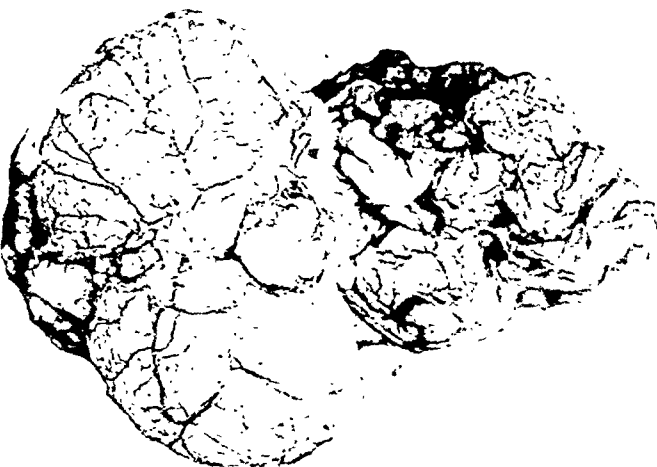


Fig. 2.—Posterior view, showing normal size of cerebellum as compared with the very small shriveled appearance of the frontal lobes.

There was no exudate. There were some diffuse signs of an old chorioid retinitis. There was no nystagmus.

Operation.—On March 1, 1910, Dr. Abbe did an exploratory craniotomy. A curved incision 4 inches long was made in the right parietal region. The periosteum was elevated and the opening enlarged with rongeur forceps. The dura mater was bulging but on incision collapsed. The entire right hemisphere was replaced by a reticulum of cobweb-like tissue filled with clear watery fluid. No cerebral substance could be seen at operation, and the wound was closed. This cavity was evidently the result of an old clot, as many adhesive bands were left behind. The patient survived a few hours.

Autopsy.—Performed by Dr. Zinsner. There was a marked asymmetry of the skull, the right side bulging forward especially over the right parietal surface. The sagittal suture ran backward and to the left and there was a slight protuberance of about 1 cm. in extent over the right frontal region. The external appearance of the skull was otherwise normal. Under the incision made at the operation, that is, on the posterior half of the right parietal bone, a disk of skull had been removed. On the removal of the skull-cap a considerable escape of fluid took place where apparently the saw had penetrated the dura. The lateral hemispheres were considerably contracted, leaving a large space between brain and skull. The right hemisphere of the brain showed a very great and marked degree of shrinkage. It was practically a complete atrophy of the hemisphere. There was considerable dense connective tissue, which apparently drew the convolutions together. The cortical substance was extremely thin. The lateral ventricles were very much dilated. The left hemisphere had been converted into a large cystic mass, the cortex in some places being as thin as paper, transparent and distended with fluid. The remaining cortical substance was very thin, showing an attenuated layer of brain substance. The basal portions of the brain were well developed and apparently normal.

Acknowledgement is due the House Staff of St. Luke's Hospital, especially to Dr. Heaton, for the courtesy afforded me and for the assistance in collecting these facts.

54 West Fiftieth Street.

UNUSUAL SITE OF TYPHOID PERFORATION

N. C. BLEDSOE, M.D.
BISBEE, ARIZONA

History.—July 8, 1910, J. H. M., a hoisting engineer, married, aged 37, came to see me, giving a history of trouble with his stomach. His temperature was 102.6 F., pulse 100. A diagnosis of typhoid fever was made and he was sent to the hospital, where he ran a very high temperature. He was put on a milk diet, given phenyl salicylate (2½ grs.) every three hours and sponged for temperature above 102.5. He was blue, so he was given whisky (½ oz.) after each sponging. Rose spots appeared on the fifth day in the hospital; on the seventh day he had a severe hemorrhage from the bowels. The patient was given morphin (¼ gr.), and all food withheld for forty-eight hours. He was given all the ice-cold normal salt solution that he would drink (he never made any complaint about it). In twelve hours his temperature dropped to 98, pulse 98, slower than it had been at any previous time. From that time until the tenth day he passed in all 73 ounces of blood. The abdomen was never distended, nor did the patient complain of any discomfort whatever. On the twelfth day at 3 a. m. he suddenly complained of severe pain in his stomach, radiating across the abdomen just under the costal arch. He was given codein (½ gr.) hypodermatically, and I went to the hospital as soon as I could. The codein quieted him a little. At 5 a. m. he had a chill and had very severe pain. Just previous to his attack of pain his condition was, temperature 101.6, pulse 104. When I examined him his pulse was 126, temperature 103 F., face drawn and anxious, both recti tense, but no distention. A diagnosis of perforation was made, relatives called, and all preparations made for operation. The family wanted consultation. A consultant was called and confirmed the diagnosis, but wanted to put off operating, as the patient was resting easily. One hour later his condition was decidedly worse; pulse 130, temperature 103, respiration 36. The relatives were told his condition. They decided, with the consent of the patient, not to operate.

The distention became very marked across the upper part of the abdomen above the transverse colon. The lower part of the abdomen remained flat, but more tense than ever. At 7 p. m. the patient died.



Perforation at the junction of pylorus and duodenum.

Autopsy.—This revealed typhoid ulcers over the whole of the intestinal tract; abdomen full of thin fecal matter; no perforation in the small intestine, or in the colon, but at the junction of the duodenum and the pylorus, as shown in the illustration, was the fatal perforation. On closer examination the perforation was found to be in the center of radiating bands of adhesions, looking like an old duodenal ulcer; it had healed and the typhoid infection had attacked this portion of the intestinal tract causing the perforation and death.

I can find no record in my medical literature of a perforation in this region, hence this report. We see so few perforations that it is hard to say definitely from

rise to no subjective symptoms. The overlying epidermis was normal in color. Two centimeters farther back was a second lesion, smaller than the first, and of a purplish hue. It was quite soft to the touch. Immediately below the anterior fold of the elbow-joint was a larger tumor (Fig. 2) (1.5 by 2 cm. in diameter, and 1 cm. in height), which was also purplish in color, and soft and compressible. Higher up, on the inner surface of the upper arm, were four more nodules, arranged in an irregular chain. In only one of these could fluctuation be obtained. The epitrochlear and axillary glands were not palpable. The signs which commonly mark the presence of an ascending cellulitis were absolutely lacking. The patient's temperature was normal, and she stated that if she had not seen the nodules on the wrist she would not know they were present. Permission to excise one of the smaller lesions was firmly refused.

Bacteriologic Examination.—A clinical diagnosis of sporotrichosis was made, and the case referred to Dr. W. K. Trimble, of this city, for bacteriologic examination. The large lesion near the elbow-joint was incised, under the usual precautions, and two agar and four glycerin-agar tubes inoculated. The pus was of a mahogany color, thick, stringy, and of the consistency of syrup. The tubes were placed in an incubator at 37 C. Four days later, there were abundant growths on all six. On investigation, it was found that pure cultures of the organism had developed on five of the slants (Fig. 3) (one glycerin-agar tube having become contaminated). Some of the patient's blood was secured, and an effort made to prove the feasibility of the spore-agglutination test. The method was found, however, to be of more theoretical than practical value.

Treatment.—Potassium iodid, in doses of from 2.0 to 3.0 gm. per day, has been found to be almost a specific in this disease (I am unable to discover who first suggested its use). Locally, a saturated aqueous solution of the same salt, or one of the iodine, potassium iodid, and oil mixtures, is of great value. The patient was placed on this line of treatment with extremely satisfactory results. When I last saw her, ten days after the first consultation, the lesions had almost entirely disappeared.

610 Commerce Building.

A CONTRIBUTION TO THE SUBJECT OF TUMORS OF THE HYPOPHYSIS

DEAN D. LEWIS, M.D.
CHICAGO

I. TUMORS DEVELOPING FROM CRANIO-PHARYNGEAL DUCT INCLUSIONS

In 1902 Saxer described an epithelial tumor which replaced the infundibulum of the hypophysis, filled up and distended the recessus infundibuli and the recessus opticus, and extended into the third ventricle so as to form a part of its floor, also into the lateral ventricle through the foramen of Monro. The anterior lobe of the hypophysis was normal and the tumor was unconnected with the choroid plexus. The nodular, free surface of the tumor, especially that projecting into the third ventricle, had a definite papillary structure. The papillae consisted of a fairly thick connective tissue ground work, which was covered by epithelial masses, the general arrangement of which corresponded to that of stratified flat epithelium. The most superficial epithelial layers consisted of flattened cells which were fusiform on cross section. The deeper layers were cubical or cylindrical and the cytoplasm of cells was markedly vacuolated. The vacuolation was one of the most striking features of the histologic picture.

In discussing the origin of this tumor Saxer states that he believed at first that the position of the tumor,

especially its relation to the floor of the third ventricle, which formed a considerable part of the upper surface of the growth, warranted him in concluding that it developed from the epithelium of the ventricle or its recess. He later changed his opinion regarding the origin of the growth, because of the character and arrangement of the connective tissue and the appearance of the epithelium, which resembled closely stratified, flat epithelium. He came to the conclusion that the cells of which this tumor was composed resembled morphologically the cells surrounding the infundibulum, which form what is now known as the *pars intermedia*. The relation of the *pars intermedia* to tumor formation will be discussed later.

Saxer in closing the discussion of this tumor states that he did not know of a record of a hypophyseal tumor with similar histologic characteristics. Scattered throughout the literature are descriptions of solid and cystic tumors occurring in the position occupied by the one described by Saxer. These have so many common gross and microscopic characteristics that they should undoubtedly be classified together. They appear in the literature under a number of different terms, such as epithelial tumor of the infundibulum and third ventricle, papilloma of the choroid plexus of the third ven-

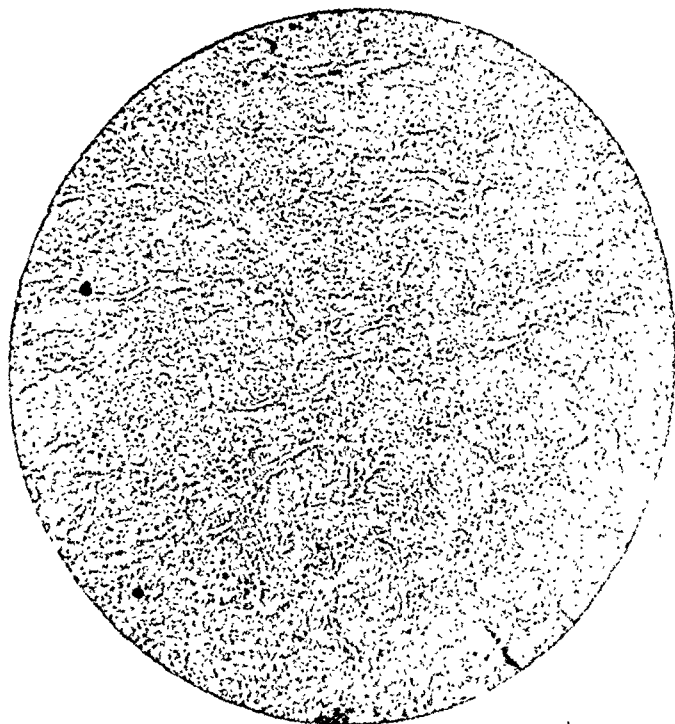


Fig. 1. Photomicrograph of section prepared from tissue removed from Case 1. The tissue has a papillomatous structure. Cylindrical cells rest on the connective tissue stalk of the papillae, while the succeeding layers of cells vary in form, the difference apparently being due to pressure. Histologically this growth corresponds to a group of tumors which occur about the infundibulum and develop from cranio-pharyngeal duct inclusions.

tricle, cystic endothelioma developing from the pia mater, epithelioma of the Malpighian type, adenoma and adeno-sarcoma of the hypophysis. Before discussing the origin of these tumors, I wish to cite the histologic descriptions of some of the reported cases in order that I may compare the histology of these with that of the growth which I have examined.

Wagner in 1861 described a growth situated behind the optic chiasm, which displaced the optic tracts to either side. The tumor was composed of many small cysts separated by thin septa. When the posterior part of the growth was incised a cavity leading into a dilated third ventricle was exposed. The lateral and fourth ventricles were normal; the anterior lobe of the hypophysis intact. The cyst walls were composed of a

connective tissue. On the outer surface were numerous villus-like bodies which were covered with many layers of epithelium. The cells covering most of the villus-like bodies were cylindrical. In some areas they resembled stratified squamous epithelium while in others they were irregular in form and grouped in masses. Wagner expressed no opinion concerning the nature of this cyst which contained free cells and cholesterol crystals.

Langer¹ in 1892 reported two cystic growths which surrounded the infundibulum and extended up to the floor of the third ventricle. The walls of these cysts were composed of delicate, cellular connective tissue and supported papillary excrescences, which were covered by cylindrical epithelium. Langer came to the conclusion, after gross and microscopic examination, that these cystic growths took their origin in the infundibulum and that they developed from pieces of tissue constricted off from the anterior extremity of the central canal.

Harbitz describes a tumor which evidently belongs to the same group. It occurred in a woman 58 years of age, who presented none of the symptoms of acromegaly, but other symptoms associated with hypophyseal growths. The tumor occupied the position of the hypophysis. It was as large as a walnut and extended along the infundibulum upward to the floor of the third ventricle, with which it became continuous. The chiasm was stretched over the tumor, the right optic nerve was flat and ribbonlike and the right optic tract could not be distinctly seen. The left optic tract and nerve were normal. Microscopically the tumor presented a fairly uniform structure. The cells were grouped into masses of various shapes and sizes separated by a connective tissue stroma. The cells resting on the stroma were cylindrical with clear cytoplasm, while those occupying the center of the masses were polygonal, round or oval. In many fields the histologic picture resembled that of a papilloma. Harbitz believed that the tumor was an adenoma, although there were evidences of proliferating growths along the periphery.

The histologic characteristics of the tumors mentioned above have been cited at some length in order that they may be compared with those of a growth which, through the kindness of Drs. A. E. Halstead and E. R. LeCount, I have recently had the opportunity of examining. The growth was removed by Dr. Halstead at St. Luke's Hospital, Chicago, from a patient presenting the symptoms associated with hypophyseal growths but without acromegaly.

CASE 1.—The patient, a man aged 39, gave a history extending over a period of two years. He complained first of a frontal headache of a peculiar pricking or sticking character. A year later his eyesight began to fail. A perforated nasal septum and aortic regurgitation suggested the possibility of cerebral syphilis and vigorous antisyphilitic treatment was therefore instituted. It was continued for a number of months without improvement. There were no symptoms of acromegaly. The patient had been impotent for eighteen months. The external genitalia were, however, well developed; there was no adiposity or suggestion of the feminine type.

The diagnosis of an hypophyseal tumor was not made until bitemporal hemianopsia was added to narrowing of the visual fields and bilateral optic atrophy developed.

The diagnosis was verified by an x-ray picture which revealed a shadow occupying the sella turcica and apparently extending upward toward the floor of the third ventricle. The detailed history and postoperative course of this case have been reported by Dr. Halstead.²

Microscopic Examination.—Several fragments of tissue removed during the operation were submitted to me for examination. The tissue was fixed in Zenker's fluid and imbedded in paraffin. The sections were stained with hematoxylin and eosin, Van Gieson's picro-fuchsin, iron-hematoxylin and neutral gentian. The last two stains were used to determine whether or not intercellular bridges and specific granules were present.

Microscopically the growth presents a fairly uniform structure. It is quite cellular, the cells being grouped in masses of various shapes and sizes, which are separated by a delicate connective tissue stroma. In some regions the epithelium has a definite arrangement, a number of layers of cells resting on connective tissue forming the stalk of a papilla. The cells resting on the connective tissue are cylindrical; the cells of the superimposed layers are polygonal or fusiform, being considerably modified by pressure. The cylindrical cells stain differently. In some fields the part of the cell adjacent to the stroma is clear and vacuolated, the distal part staining heavily with eosin; the polygonal and fusiform cells, as a rule, have a clear cytoplasm which is vacuolated.

One of the most conspicuous features of the tumor is its papillomatous structure, but this is not found in all regions. In some the cells covering the connective tissue stalk are not separated from each other, the epithelial masses appearing to be fused. Histologically it appears as if the epithelial masses have been sunken into the connective tissue stroma, the picture often resembling that of a carcinoma, although there are no other cellular changes characteristic of malignancy. Secondary papillae have developed from the primary. In some areas these seem to be connected with the parent

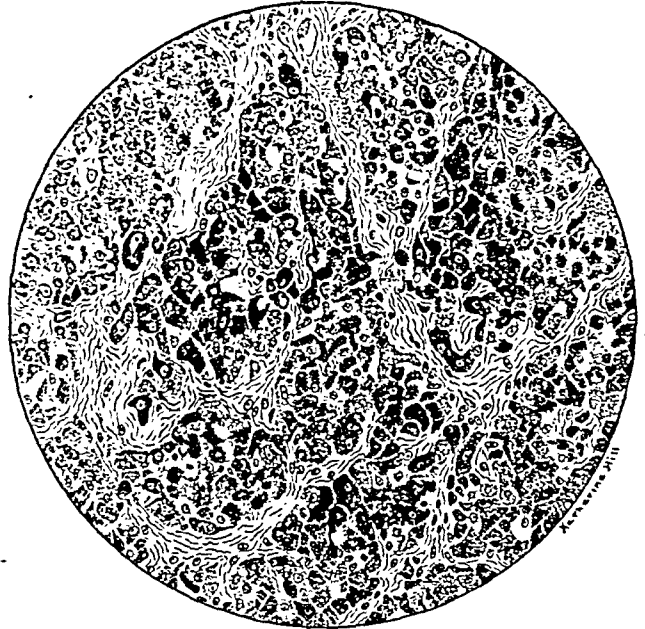


Fig. 2.—Section of tissue removed from Case 2. The cell columns have fused. The cells found in this tissue are almost entirely of the eosinophil type. Hyperplasia is indicated by the large, irregular, fused cell columns, the preponderances of eosinophil cells and karyokinesis, which can be seen with the oil immersion lens (Zellw. Compens. Oc. 6, obj. 8 mm.).

papilla by a narrow pedicle; in others they lie free. The tissue, because of the peculiar arrangement of the secondary outgrowths, presents in many fields an alveolar structure. In some regions the lumen appears to be the result of the degeneration and subsequent liquefaction of cells, in other places masses of what appear to be colloid are present in the lumen of these cellular outgrowths.

I have been unable to demonstrate cells in these sections which resemble those of the anterior lobe of the hypophysis. Delicate granules can be demonstrated in some of the cells by the neutral gentian stain, but they do not have the characteristics of the chromophil cells of the anterior lobe. They correspond to nodal points in the spongiosoplasm of the cell. There is no evidence of keratohyalin or of psammoma granules. The endothelial cells of the blood-vessels, which are abundant, are not proliferating and the cells composing the tumor do not have the radiating, mantle-like arrangement of a perithelioma, so I believe that the tumor cannot be regarded as of either endothelial or perithelial origin. It presents none of the characteristics of a glioma or ependymal tumor. Nothing definite

1. Langer, F.: Ueber cystische Tumoren in Bezirken des Infundibulum Cerebri. Ztschr. f. Heilk., 1892, xiii, 57.
2. Surg., Gynec. and Obst., May, 1910.

can be said concerning the topographical relations of this growth as the field of operation is so deep and restricted in such cases. I believe, however, that it may justly be assumed from the x-ray findings that the tumor lay beneath the floor of the third ventricle and extended downward into the sella—a position occupied by the group of tumors under consideration.

There have appeared in the literature reports of several tumors in this position which have presented clinical as well as histologic similarities. None of these has contained elements peculiar to the anterior lobe of the hypophysis and as a consequence there has arisen con-

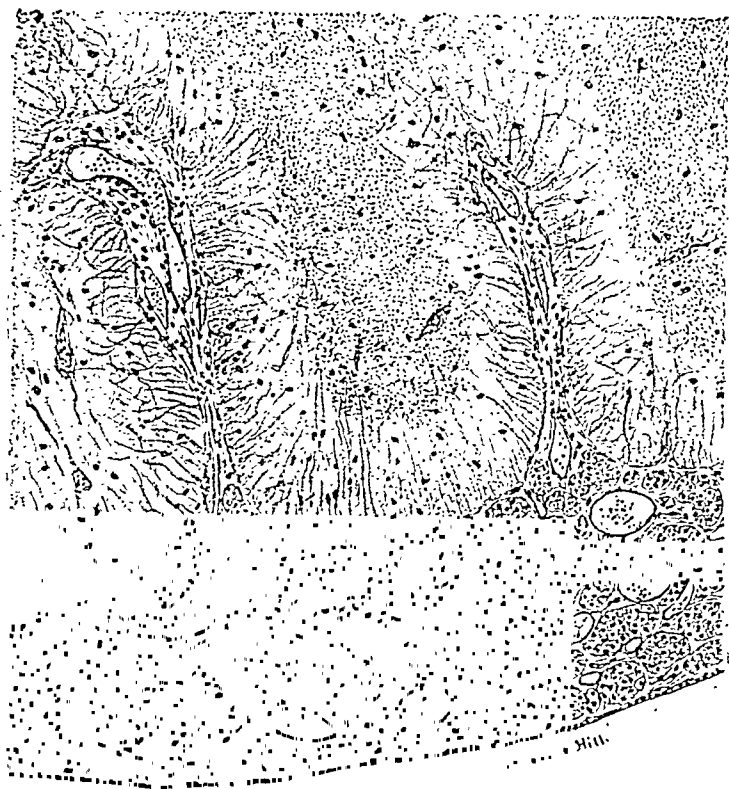


Fig. 3.—Pars intermedia of the ox.

siderable confusion as to their classification and origin. Because these growths are not associated with acromegaly, considerable doubt has arisen concerning the causal relationship between tumors of the hypophysis and this disease.

As previously mentioned, Saxer believed that the tumor observed by him took origin from a group of cells which are normally found about the infundibulum. These cells are regarded by a number of investigators as chief cells of the anterior lobe, which have invaded the infundibulum. This is apparently the view of Löwenstein. He states that his observations support the view of a number of other investigators who have found that in almost every adult the cells of the anterior lobe have invaded the posterior lobe. These cells in man lie in small groups surrounded by well developed connective tissue. They may be collected in solid cords or arranged in the form of a vesicle containing material resembling colloid. Those occurring in solid cords differ morphologically from the chief cells found in the anterior lobe, as the cytoplasm is more dense and stains more deeply. As far as I can determine, these cells are not so often vacuolated as those of the anterior lobe. The vesicles containing a colloid material are lined by a low cubical epithelium, the cells of which usually have a clearer cytoplasm than the other cells occurring in this region.

These cells are not to be regarded as invasions from the anterior lobe, but as distinct cellular elements of the

hypophysis, forming what has been called by Herring the pars intermedia. In man the development of this portion of the gland has apparently been somewhat suppressed. In the pig and ox, however, the pars intermedia has attained a much greater development, forming a large group of cells, which lie posterior to the hypophyseal cleft, the remains of the cavity of the hypophyseal vesicle. The cells of the pars intermedia in both the ox and the pig have a clear non-stainable cytoplasm and are grouped in cell columns with and without a lumen, the columns resting on the walls of numerous capillaries. The cells of the human hypophysis—which are regarded by many as ingrowths of the anterior lobe—undoubtedly correspond to those of the well developed pars intermedia of the pig and ox. Morphologically these cells are distinct, differentiation being well established, in a pig measuring 5 cm. Tumors with distinct morphological characteristics arise from the pars intermedia. The cases which have been observed will be mentioned later.

The tumor removed by Dr. Halstead does not contain any of the cellular elements peculiar to the anterior lobe and the pars intermedia. It corresponds in many respects to the descriptions of tumors given by Saxer, Harbitz, Babinski and Onanoff and others, which have been observed about the infundibulum. Some of these have been solid growths, the majority have been cystic. I believe that Saxer was wrong in thinking that the tumor described by him developed from the cells of the pars intermedia. His statements that the epithelium occurring in the tumor observed by him resembled stratified, flat epithelium is sufficient to exclude origin from these cells.

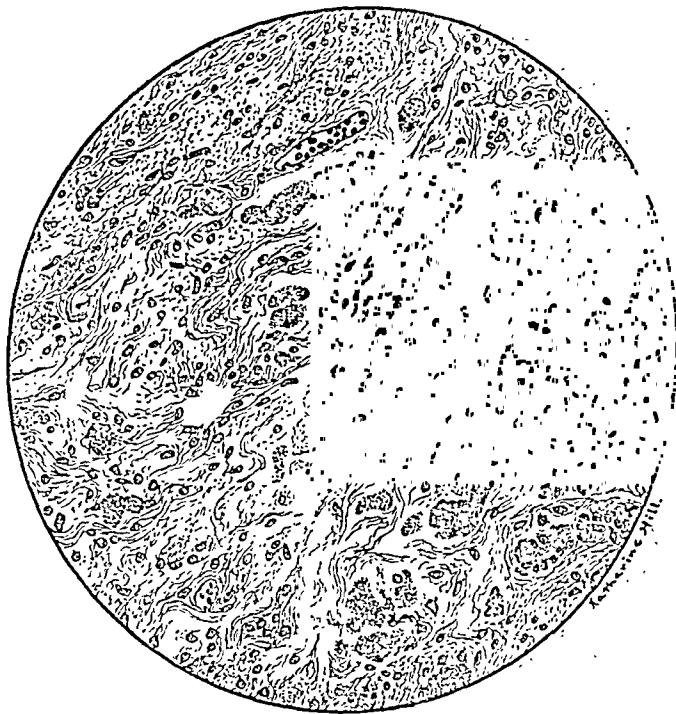


Fig. 4.—Cells of the pars intermedia of the human hypophysis showing their distribution in nervous tissue.

Erdheim⁴ was the first to recognize that a number of growths which had been found about the infundibulum, and had appeared in the literature under a number of different terms, belonged to one group. In 1904 he published a monograph dealing with seven cases which he had studied personally and with twelve cases collected from the literature which had appeared under a number

⁴ Erdheim, J.: Ueber Hypophysengang-Geschwülste und Hirn-Cholesteatome, Wien, 1904.

of different terms. Among the twelve tumors found in the literature, four were solid and eight cystic. Erdheim in examining his cases found cells with distinct intercellular bridges and epithelium which resembled closely stratified epithelium. In order to determine the frequency with which islands of undifferentiated cranio-pharyngeal epithelium occur in the hypophysis, he made serial sections of twenty glands. As islands of cranio-pharyngeal epithelium cannot be accurately determined in the fetus and newborn, because of the failure of complete differentiation, but thirteen glands were used in his studies. In ten of the thirteen cases he found islands of undifferentiated cranio-pharyngeal epithelium within the gland. The epithelial islands were situated in the infundibulum and the upper surface of the anterior lobe adjacent to it; also on the anterior surface of the posterior lobe. This peculiar distribution of this type of epithelium is due to the position of the cranio-pharyngeal duct in the final development of the gland.

While I have been unable to demonstrate intercellular bridges in the tumor under discussion I believe that it has enough of the characteristics common to this group to warrant one in placing it here. The epithelium of the cranio-pharyngeal duct is capable of forming adult cellular elements which differ markedly morphologically. The growth just described corresponds more closely to those arising from cranio-pharyngeal epithelium than to any other.

Some twenty-nine tumors have been described which belong to this group. The sex has been mentioned in twenty-eight, the tumor occurring nineteen times in the female and nine times in the male. The average age at which the tumor has developed is 32. The youngest patient was 9 years of age, the oldest 63.

The clinical courses of these cases have had fairly wide limits. Some cases have run a course of six or eight years, while others have been extremely acute. The patient observed by Bregmann and Steinhaus⁵ had been perfectly well four weeks before entering the hospital. Her illness began with severe pain about the left eye and convulsive movements of the left eyelid. Three weeks later she became apathetic, desired nothing to eat, gave no reply when talked to and showed no concern about her condition. General weakness was a marked feature of the clinical picture. She could not sit upright in bed without considerable difficulty and could not stand without assistance. The gait was ataxic, the left pupil dilated and immobile. Ptosis of the left lid, limitations of movements of the left eye upward and inward, spasm of the left orbicularis oculi, paresis of the lower branches of the right facial, paresis of the right side, especially of the lower extremity, ataxia of the right upper extremity, nasal twang to the voice and some difficulty in swallowing completed the clinical picture. The ophthalmoscopic examination was negative. The clinical diagnosis rested between brain tumor and encephalitis about the crura. The rapid clinical course and absence of pressure symptoms favored the diagnosis of encephalitis.

In Bartels' case the usual symptoms of brain tumor—dizziness, headache, vomiting and mental dullness—were absent and the pulse was constantly rapid. In this case the boy developed normally until 14 years of age, when the changes associated with dystrophia adiposo-genitalis developed rapidly—the clinical course of the tumor extending over a period of seven years.

No definite symptom-complex accompanies the development of these growths. Most of them have been associated with the usual symptoms of brain tumor, but these may be wanting or not pronounced as in the two

cases cited above. The most striking clinical feature, also perhaps the most constant, is the early loss of eyesight, optic atrophy developing in most of the cases without preceding choking of the disk. Choked disk is apparently much less common with hypophyseal than other intracranial growths. Bartels⁶ has collected forty cases of tumors of the hypophysis and studied their relation to choked disk. In twenty of these, 50 per cent., there was simple bilateral atrophy, one unilateral atrophy, in 15 per cent., double choked disk, in 15 per cent. neuritis with subsequent atrophy and in 10 per cent. there was no change at all. These statistics do not support Berger's statement that a very considerable percentage of the tumors of the hypophysis are accompanied by choked disk instead of optic atrophy.

In the clinical histories of nine of the recorded cases of tumor involving the infundibulum—only cases are included which apparently developed from cranio-pharyngeal inclusions—it is noted that the patient was fleshy or had some evidence of interference with genital development, such as small external genitalia or the absence of or falling out of pubic and axillary hair. About 32 per cent. of the cases, then, have had some or all of the features associated with dystrophia adiposo-genitalis.

It has been recognized for a long time that deposition of fat and the development of the feminine type were frequently associated with hypophyseal tumors.

The cause of these trophic disturbances has been variously interpreted. Erdheim believes that the adiposity with genital atrophy, and in the male, with the development of the feminine type, the syndrome described by Fröhlich, is not due to any interference with the function of the hypophysis, but that it is the result of pressure exerted on certain centers at the base of the brain by the enlarging tumor. He has noticed that this syndrome has been most frequently associated with those tumors which grow out of the sella and extend to the base of the brain, and with those in which the tumor has not developed in the sella or the hypophysis proper, but from the infundibulum. In support of his view he cites a number of cases, such as those of Selke, Boyce and Beadles,⁷ Babinski, Cestan and Halberstadt and Gläser. The view advanced by Erdheim is supported by Bartels. It is an interesting fact that in all of these cases the tumor was so situated that it could easily interfere with the function and viability of the cells of the pars intermedia, even if the anterior lobe of the hypophysis were intact.

Fat may be taken on rapidly with brain tumors not occupying the sella or occurring about the infundibulum. The rapid deposition of fat is explained in these cases by the sedentary habits which the patients are obliged to lead as the result of loss of vision or to the apathy attendant on increased intracranial pressure. There is, however, no group of intracranial tumors so frequently associated with the Fröhlich syndrome as those occurring about the infundibulum, which during growth must interfere with the function of the cells of the pars intermedia. As previously mentioned, these cells are entirely distinct from those of the anterior lobe, and while one cannot assume that differences in morphology indicate differences in function, one cannot help being struck with the frequency with which these in-

5. Bregmann, L., and Steinhaus, G.: Zur Kenntniss der Geschwülste der Hypophysis u. der Hypophysengegend. Arch. f. path. Anat. u. Physiol. u. f. klin. Med., 1907, cxxxvii, 360.

6. Bartels, M.: Ueber platten Geschwülste der Hypophysengegend. (des Infundibulums). Ztschr. f. Augenheilk., 1906, xvi, 407.

7. Boyce, R., and Beadles, C. F.: A Further Contribution to the Study of the Pathology of the Hypophysis. Jour. Path. and Bacteriol., 1893, i, 359.

fundibular tumors—composed of a type of epithelium foreign to the hypophysis—are associated with Fröhlich's syndrome.

The association is so common that one is justified in making a diagnosis of an infundibular growth—probably of cranio-pharyngeal origin—when this syndrome, accompanied by eye changes, develops without any symptoms of acromegaly.

Cushing's⁸ experimental work would seem to indicate that hypopituitarism is the cause of dystrophia adiposogenitalis. This syndrome may be associated in acromegaly. It is difficult to explain this combination of symptoms, if acromegaly is dependent on hyperactivity of the gland, unless we assume that the growth associated with the acromegalic symptoms has interfered with the activity of another part of the gland with a different function.

Creutzfeldt's table, published in 1908, shows that tumors developing from inclusions of the cranio-pharyngeal duct are the most common of the growths of the hypophysis unassociated with acromegaly. The following table indicates the frequency of different varieties of tumors in 55 cases of tumor of the hypophysis without acromegaly which came to autopsy:

No. Cases.	Character.	Per Cent.
19	Cranio-pharyngeal duct tumors.....	34.54
15	Sarcomas	27.27
5	Hyperplasia	9.09
3	Strumas	5.45
10	Adenomas	18.18
1	Metastatic growth from thyroid tumor.....	1.818
1	Teratoma	1.818
1	Lipoma	1.818

II. TUMORS DEVELOPING FROM THE PARS INTERMEDIA

Three cases are found in the literature in which the tumor originated in the cells of the pars intermedia.

Boyce and Beadles describe a small tumor at the base of the brain, which rested on the pituitary body but was entirely outside of the sella turcica. The tumor, which was round, firm, and as large as a medium-sized pea, appeared to be an accessory pituitary body. The gland was of about normal size and appearance and was quite independent of the tumor, except for a slender connection passing up to the infundibulum, from which the accessory body appeared to take origin. Microscopic examination showed that the infundibulum enlarged just above the hypophysis to form a small tumor which measured $\frac{1}{4}$ inch in diameter and projected posteriorly. The tumor was composed of large polygonal cells, larger than those met with in the anterior lobe. A few cells were polynuclear. In some instances the nuclear staining was poor. A definite, acinar grouping of the cells was only slightly apparent at the periphery, but numerous capillaries tended to produce a certain amount of lobulation. One must conclude from the description of the growth and the accompanying figure that it developed from the pars intermedia.

Erdheim mentions a growth which apparently originated in the pars intermedia. It occurred in the infundibulum of a woman 86 years of age and was about as large as a hemp seed. Microscopically it consisted of large cells with heavily-staining cytoplasm, which had grown into the fibrous tissue of the infundibulum, as the normal cells of the anterior lobe so frequently do, as Erdheim states.

Cushing in a recent article states that Crowe, while studying sections of a large adenomatous tumor at the base of the brain, removed from an excessively obese individual, who had died of pressure effects, found a normal, though compressed, anterior hypophyseal lobe with undoubted evidence that the growth originated from the pars intermedia alone. The vesicles contained colloid and the tumor resembled in its arrangement one which might have originated from the thyroid gland.

These are the only undoubted examples of tumors arising in the pars intermedia. I believe it quite possible, however, that some of the peculiar types of sarcoma and adenoma may have arisen from this portion of the gland, for mistakes in anatomic diagnosis could easily be made if the structure of this part of the gland were not recognized.

The tumors described by Boyce and Beadles and Erdheim occurred in women aged 74 and 86 respectively. Neither tumor had given rise to symptoms, being discovered accidentally during routine post-mortem examinations. The age and sex of the case observed by Cushing are not given. It is to be noted, however, that in this instance the patient was excessively obese.

III. HYPERPLASIA OF THE ANTERIOR LOBE OF THE HYPOPHYSIS WITH ACROMEGALY

CASE 2.—The patient was an unmarried woman aged 32. Her illness began two years ago with eye symptoms. Various diagnoses of these were made, until bitemporal hemianopsia, optic atrophy, severe headaches and vomiting, indicating enlargement of the hypophysis, developed. Unmistakable signs of acromegaly now manifested themselves. The diagnosis of a tumor of the hypophysis was verified by the x-ray findings. Menstruation had been irregular for over twelve years, but the flow was not diminished in amount. There had been no polyuria. No adiposity or change in the external genital characteristics had been noted. The technic employed in exposing the hypophysis has already been described by Dr. Halstead. After the fat surrounding the hypophysis had been removed a cyst-like mass with gelatinous contents, not unlike soft granulation tissue, was curetted away. The patient did not recover from the partial hypophysectomy. After the operation she presented a peculiar train of symptoms, which Dr. Hamburger has suggested may have been due to the rapid absorption of hypophyseal secretion. These symptoms had some features in common with those which so often follow partial thyroidectomies for the relief of Basedow's disease.

Microscopic Examination.—The tissues were fixed in Zenker's fluid, imbedded in paraffin and stained with neutral gentian, hematoxylin and eosin, copper-chrome-hematoxylin and Van Gieson's picro-fuchsin. In studying sections of the hypophysis in cases of acromegaly it is necessary to use fixing fluids which will preserve the granules, and stains which will differentiate them. Zenker's fluid gives very satisfactory results, as the chrome salt gives the best results with neutral gentian technic.

Iron-hematoxylin, copper-chrome-hematoxylin and Bensley's mitochondria stain—give good results after fixation in Zenker's fluid. The importance of fixing the granules and of using stains which differentiate them cannot be insisted on too strongly. Hypophyseal cells when proliferating tend to reproduce the structure of a sarcoma and mistakes in anatomic diagnosis have often been made because of the failure to use fixatives and stains which preserve and differentiate the granules. Benda⁹ was the first to call attention to the possibility of interpreting a hyperplasia or an adenoma of the hypophysis as a sarcoma. Mendel then reexamined some cases which had been regarded by him as sarcomas and when granule stains were employed he could demonstrate the granules peculiar to the cells of the anterior lobe of the hypophysis, thus confirming Benda's view.

The histologic appearance of the tissue from this case differs in the various fields. In some, the cell columns are cut parallel to their long axes and appear as long strands between a rather heavy fibrous tissue. The cells appear to be normal and their arrangement does not differ from that usually found in the gland. In other fields the connective tissue between the cell columns is markedly reduced in amount, the cell masses being larger than is normally the case and separated from each other by delicate strands of connective tissue. The histologic picture indicating fusion of adjacent cell columns. In these areas karyokinetic figures are quite frequently encountered in

8. Cushing, H.: The Functions of the Pituitary Body; Am. Jour. Med. Sc., 1910, cxxxix, 473.

9. Benda: Deutsch. med. Wchnschr., 1901, xxiii, 536.

the cells, karyokinesis being most active in the cells with a light brown cytoplasm with few granules, as they appear in copper chrome preparation.

The fusion in some fields becomes so marked that large cell masses without definite boundaries are formed. The histologic picture is that of hyperplasia ending in adenoma formation. I have attempted to determine whether the chromophobe or chromophile cells predominate. So many transitional phases are present that it is impossible to determine accurately the relative proportions of the different cells. Eosinophil cells predominate in the field represented in Figure 2. It is difficult to estimate the relative proportion of the different cellular elements in all of the fields. None of the large vesicular type of cell, largely free from granules, which Cushing is inclined to believe represents the active or at least discharged phase of the gland, is present.

Notwithstanding the number of articles which have appeared dealing with the relation existing between tumors of the hypophysis and acromegaly, there is still considerable diversity of opinion regarding it. Cagnetto¹⁰ believes that acromegaly is not the result of hypophyseal changes, but that the latter are the result of some obscure general disease. In support of this view he cites the following observations: 1. Cases of acromegaly have been observed without a tumor of the hypophysis. 2. Adenomas composed entirely of chromophobe elements but associated with acromegaly have been found. 3. Adenomas composed entirely of chromophil elements (regarded by many as the actively secreting cells of the glands), without acromegaly have been observed.

Those cases in which no changes have been found in acromegaly are open to doubt, for in some instances a careful histologic examination has not been made, and besides the possibility of a *Rachendach* or pharyngeal hypophysis has been overlooked. Haberfeld's¹¹ observations in this connection are exceedingly important. He has found almost constantly in patients of advanced age hypophyseal tissue in the vault of the pharynx, which is not to be regarded as embryonal rests which have undergone partial regressive changes, but as active hypophyseal tissue which is able to perform a function similar to the gland occupying the sella. Those cases in which no changes in the hypophysis have been described cannot be used as an argument against the hypophyseal origin of the disease, for even in the cases in which a careful histologic examination has revealed no changes a search for and examination of the pharyngeal hypophysis have not been made.

Our knowledge concerning the functional stages of the different cellular elements of the hypophysis is still imperfect. I believe that the histologic evidence favors the theory that the different cells of the anterior lobe are functional stages of each other and that the eosinophil elements represent the most actively functioning type. It is difficult to determine this, however, as it is practically impossible to exhaust the gland by repeated pilocarpin injections—a method which has yielded such good results in the study of the functional stages of glands with an external secretion. I attempted some five years ago to exhaust the cells of the anterior lobe by repeated pilocarpin injections without success.

Cagnetto and Modena have reported cases of acromegaly in which adenomas of the hypophysis were

found, which were composed entirely of chromophobe elements, which are regarded by many as the least actively functioning cells of the gland. It is difficult to determine what effect such a growth may have on the remaining cells of such a gland as the hypophysis. The similarity between hypophyseal and thyroid changes have been emphasized for some time. Hyperthyroidism may be associated with cystadenomas and even chondromas, and although actively functioning cells are not found in the tumors the symptoms subside when the growth is removed. The same relation may exist between an adenoma of the hypophysis composed entirely of chromophobe elements and acromegaly as may exist between fetal adenomas of the thyroid and hyperthyroidism. Zak has reported a tumor of the hypophysis occurring in a patient 52 years of age, which was composed almost entirely of eosinophil elements but was unassociated with acromegaly.

Creutzfeldt in a recent article dealing with lesions of the hypophysis gives the following statistics concerning the changes found in the hypophysis in 56 cases of acromegaly:

No. Cases.	Character of Lesion.	Per Cent.
5	Without hypophyseal changes or changes not mentioned	8.9
15	Sarcoma	26.7
12	Hyperplasia	21.4
8	Struma	14.2
12	Adenoma	21.4
4	No anatomic diagnosis	7.1

It will be seen from the above table that hyperplasia, struma or adenoma of the hypophysis was found in 57 per cent. of the cases of acromegaly. It is quite probable that most of the cases regarded as sarcoma were actually adenomas of the hypophysis, the possibilities of error in anatomic diagnosis having been previously discussed. It seems probable, then, that definite evidence of increased hypophyseal function can be found in about 83 per cent. of these cases of acromegaly. The constancy of hypophyseal changes and the frequency with which the same lesion is repeated cannot be overlooked in determining the etiologic relationship between hyperpituitarism and acromegaly. This relationship is still more strikingly emphasized by the improvement noted by Cushing and Hoehenegg in acromegalic patients following partial hypophysectomy.

CONCLUSIONS

1. The most common tumor of the infundibulum is that developing from inclusions of the cranio-pharyngeal duct. These may be cystic or solid. They are more frequently associated with Fröhlich's syndrome than any other type of intracranial tumor.

2. The most common lesion of the hypophysis in cases of acromegaly is the struma or adenoma of the anterior lobe. In the early stages of the disease, the course having been interrupted by an intercurrent affection, a hyperplasia of the anterior lobe may be found.

3. In cases of acromegaly in which there is no enlargement of the hypophysis careful histologic examination as to the character of the cells should be made. In cases of acromegaly in which no gross or microscopic changes are found in the gland the examination should not be regarded as complete unless a careful search for and study of the pharyngeal hypophysis has been made.

4. Tumors developing from the pars intermedia are rare, but three cases being reported. Two of these gave rise to no symptoms, the tumor being discovered during routine post-mortem examinations. Cushing's patient died as the result of increased intracranial pressure. It

10. Cagnetto, G.: Neuer Beitrag z. Studium der Akromegalie mit besonderer Berücksichtigung der Frage nach der Zusammenhang der Akromegalie mit Hypophysen-Geschwülsten, Arch. f. path. Anat. u. Physiol. u. f. klin. Med., 1907, cxxxvii, 197.

11. Haberfeld, W.: Die Rachendach-Hypophyse; andere Hypophysenrestes u. deren Bedeutung f. die Path. (Beitr. z. path. Anat. u. z. allg. Path., 1909, lxi, 133.

should be noted in this case that the patient was excessively obese.

5. It is probable that some of the tumors arising from the pars intermedia may have been regarded as peculiar types of adenoma or sarcoma.

6. Stains which differentiate granules should be used in examining all growths of the hypophysis in order that incorrect anatomic diagnosis may be avoided, for hypophyseal cells tend to reproduce the morphology of a sarcoma when proliferating. The specific granules will differentiate the hypophyseal cells from those of a sarcoma.

7. Failure to recognize the morphology of the different elements in the hypophysis and their relation to tumor formation accounts for much of the confusion concerning the relation of the gland to acromegaly.

150 Michigan Avenue.

THE ESSENTIAL DIFFERENCES BETWEEN THE PHYSICAL FINDINGS IN CHILD- HOOD AND ADULT LIFE

A CLINICAL AND ROENTGENOGRAPHIC STUDY*

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It has not been our purpose to compare seriatim all the physical findings of infancy and childhood with those in later life, as this would be both long and without advantage. This paper originated rather in the difficulty which we experienced and which has doubtless been duplicated by every diagnostician, in interpreting properly many of the physical findings of childhood, even in normal children. This interpretation of signs in childhood might be compared to those in adult life as the examination of a moving train is to the examination of one stationary. There can be no permanency at any stage of the child's development; there can be no entirely definite and satisfactory standard at any age; there can, indeed, be no certainty of what constitutes the norm in a child, as the abnormal is so frequent and the differentiation so delicate.

It would seem that, with such unlimited material in the hands of nearly every practitioner of medicine, with such abundant opportunities for observation, there would be at this time little difference of opinion in regard to many signs in childhood. Yet this is not true. The ideal method of acquiring skill and accuracy in physical diagnosis is by the checking up process of the autopsy table, but this is unfortunate in that it has to do with pathologic conditions. The acquisition of accuracy in physical diagnosis cannot possibly come from observation of others, reading, or lectures, but must be obtained by the individual on the living body. The autopsy control is clearly impossible to the vast majority and, for the reason above mentioned, not entirely satisfactory to the remaining small minority.

The replacement of this control in diagnosis on the unhealthy dead by another control on the healthy living is made possible with the Roentgen examination, a

means that we have used with much satisfaction. The Roentgen ray can never be a substitute for the eye and the hand and the ear, because it is too often unavailable at the time needed; because it is impossible for poor patients in their homes, and for other very obvious reasons. All of the Roentgen work in this connection has been done by one of us. It has been our aim to check up the physical findings; especially percussion findings, with the Roentgen ray and to pay especial attention to a number of points concerning which there is still much discussion and uncertainty.

EXAMINATION OF THE CHEST

The roentgenographic examination of the thorax in infants is difficult. This is particularly true with the orthodiagraphic method. Fortunately, improvements in apparatus and technic allow young children to be examined by means of the teleroentgenographic method with accuracy and dispatch. This has been the method utilized by us. In order to make the exposures within the time limit necessary to secure good results, a tube distance of 1 meter was adopted. Observations made by us showed that, with children at the ages studied (under 12 years), this distance allowed more accuracy than a distance of 2 meters in adults; a distance which has been generally accepted and proved of such accuracy as to replace the orthodiagraph in routine work. All children old enough to stand upright were examined in this position with face to the plate. This method reduces the apparent enlargement of the heart and great vessels to a minimum, so that it can be virtually disregarded. Seventy children under the age of 12 have been studied by us with this method. Our material has been derived from the St. Vincent Orphanage, the Toledo Juvenile Home, and the private practice of each of us.

The general points of difference in the thorax of childhood and adult life are at once distinctive. The younger the child, the greater is the distinction. The shape of the thorax in the new-born is obtusely conical, with the greatest circumference at the base. The circumference decreases gradually toward the upper aperture, but not with a cone-like regularity. The antero-posterior diameter at birth is practically that of the transverse dimension. This cylinder-like chest has a direct bearing on certain physical findings, especially cardiac, to be touched on at another point. The figures of Rauchfuss show that these dimensions change with some constancy as development progresses. The ratio of the antero-posterior diameter to the transverse is as 14 to 18 at the sixth year and as 14.5 to 20 at the twelfth. The sternum in childhood shows a marked difference in position relative to the vertebral column. It may be fully two vertebrae higher in early life, with a corresponding rise of the anterior border of the upper thoracic aperture, with the result that this aperture lies in a more nearly horizontal plane.

The ribs in childhood vary distinctively from their position in after-life. It is this fact which is responsible for the error incurred in considering ribs and interspaces as landmarks comparable to those of adult life. In childhood the projection of the ribs from the spinal column is transverse rather than the oblique direction of later life. A given point on the thoracic wall in childhood would not correspond to a similar point in adult life measured in terms of spinal vertebrae, which is our most fixed and stable means of comparison. The ribs not only project more transversely at

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

their beginning, but continue around the chest without the downward inclination of adult life, resulting in a chest contour resembling the adult chest at the height of inspiration. The transverse direction of the ribs allows more room for the lungs posteriorly and this fact is not without significance in the interpretation of signs under the sternum, where the anterior lung borders constitute a factor. The epigastric angle in consequence of the horizontally placed ribs is, of course, more obtuse than in adult life.

The examination of the chest in childhood is all too frequently by auscultation alone. This is due to the difficulty of obtaining satisfactory results from percussion. The great number of methods recommended for accurately outlining the thoracic organ borders attest the more or less unsatisfactory nature of most of them. There is a practical unanimity of belief in the greater advantage of light over strong percussion, but a considerable difference of opinion as to the degree of lightness. Strong percussion will not uncommonly produce a tense, involuntary, muscular contraction, which tends to cloud the actual note of the underlying structures. Hein showed by his experiments that with light percussion he could demonstrate the presence of airless organs through layers of lung tissue up to 1 cm. thick. In reality, the edges of the lung which cover the heart in children never reach this thickness.

It is not at all probable that one will percuss too lightly in children, so the care should be taken in the other direction. That form of percussion known as Goldscheider's or "threshold percussion" is peculiarly adapted to children. Here the lightest stroke possible is employed and the note produced is at the extreme limit of audibility. The percussion stroke by this method does not disturb tissue structures except under the percussing finger. No one can be sure that the tone produced by ordinary percussion is not a transmitted one or is influenced by adjacent organs or structures. Ideal conditions of quietness are absolutely essential in order to hear and to interpret properly a note at the extreme limit of audibility. Practically such a degree of quietness is not always attainable and to use Goldscheider's method under other conditions means failure. It is difficult to understand from purely theoretical reasons Goldscheider's statement that by this method only the axial waves produced in the direction of the finger stroke are perceived, and that all divergent, radiating waves are imperceptible.

The vibrations produced by a percussion stroke of the body wall, the underlying tissues, and contained air does not extend only along one line and that a prolongation of the axis of the percussing finger, but radiates, in all directions. Any area of resonance or tympany that is reached by these centrifugal lines of vibration may mask, cloud or disturb a non-resonant note produced immediately under the percussing finger. It is on account of this fact that we should tend to percuss a point rather than an area. In order to do this, the smaller the pleximeter area in contact with the body wall, the greater is the likelihood that the note produced will be from the point or area in question and will not include a transmitted sound. The Plesch method of percussing on the terminal phalanx of the finger is good theoretically, if it does not involve an unnatural over-extension of the terminal interphalangeal joint, resulting in an uncomfortable and difficult position. It happens, not uncommonly, that such a method of percussing cannot be carried out without lavishing such a degree of atten-

tion on the art of percussion *per se*, that the interpretation will seriously suffer thereby. The technic of percussion becomes to all good diagnosticians, a second nature, and one should be entirely unconscious of the stroke, giving his entire attention to the note produced and the degree of resistance encountered. It is questionable if one who has to weigh the individual percussion stroke can interpret the note accurately. The average clinician learns his percussion technic on adults and neglects, or is unable, to change to another method; it is necessary that one should change with children, and still be unconscious of the change.

It is very doubtful if a single method of percussion is applicable to every one. Certainly, different clinicians get equally good results with different methods. Other things being equal, the smaller the pleximeter finger area is in contact with the body wall in children, the better. This is true, especially in children, because of the greater vibration than in the adult from a blow of equal force. There are a number of factors concerned in this—the thinness of the chest wall, the absence of complete ossification in the costal cartilages, and the greater delicateness of the bony framework. We have found that in extending the last two phalanges of the pleximeter finger on the body wall, it is possible to exert the greatest pressure, comparatively speaking, directly under the terminal interphalangeal joint and still to allow the finger to rest lightly in contact with the body wall. This preserves the natural finger position and has been found satisfactory.

There are many points of difference in gross anatomy between childhood and adult life, which have a direct bearing on the differences in the physical signs. The incomplete development of the heart and lungs, the greater relative size of the thymus, the different position of the diaphragm, the differences in the thoracic wall, all have their influence on the diagnostic findings.

EXAMINATION OF THE THYMUS

The thymus gland is a structure producing in infancy and childhood physical signs which are essentially different from those in adult life. This is an instance in which these differences are due to a complete or almost complete obliteration of an anatomic structure in the change from childhood to adolescence. There has been an interesting difference of opinion among anatomists concerning the thymus, which is well illustrated by the extremes of size given, varying from 2.0 gm. to 31 gm., a variation that is difficult to harmonize with normal body differences. A partial explanation at least may be found in the inability of anatomists to secure normal infants for anatomic measurements. The thymus mirrors or reflects in considerable degree the general nutrition of the child. Poorly nourished children, or those dying after prolonged infections or wasting diseases usually show a small thymus. Friedleben gives the following figures of average thymus weights:

Weight at birth.....	14.3 gm.
1 to 9 months.....	20.7 gm.
9 to 24 months.....	27.3 gm.
2 to 14 years.....	27.0 gm.
15 to 25 years.....	22.1 gm.
25 to 35 years.....	3.1 gm.

The examination of the thymus for physical signs is difficult and very often unsatisfactory. Inspection does not show anything and palpation shows but little. Auscultatory help is questionable and our methods fall back on percussion alone. The dulness produced by the

thymus has never been in our experience more than a slight diminution of resonance. The demarcation of borders is very unsatisfactory when the percussion note is not distinctly dull. The differentiation of this diminished resonance is peculiarly difficult on account of the close association and relation with the sternum, great vessels of the thorax and occasional enlarged bronchial glands. Typical cases show, according to Blumenreich, an area of diminished resonance that is roughly triangular, with blunted angles. The base of this triangle is a line drawn between the lower edges of the clavicular extremities. The tip of the triangle lies on the sternum on or more often below the angle of Louis. Lines drawn slightly convex outward, which connect the extremities of the base line with the apex, will map out the lateral edges of diminished resonance. These lateral lines, however, are not symmetrical. The left edge of diminished resonance usually projects considerably over the left sternum border, but not so on the right. A large thymus manifests itself by an extension of the area of diminished resonance downward and to the left rather than to the right. This enlarged area tends to merge with dulness produced by the heart and great vessels.

We have given especial attention to the thymus in our roentgenographic work. Basing conclusions on our seventy examined cases, we believe that reports of other investigators that it is possible to determine the normal thymus shadow by the use of the Roentgen rays, are erroneous. Hochsinger states that "the middle shadow thrown by the thymus under normal conditions rests on the shadow thrown by the heart, just as the slender neck of a bottle is fixed on the body of the bottle." This bottle-neck shadow, due to the thymus and heart, has come to be a sort of fixture in medical literature, mainly by reiteration and quotation. The roentgenographs published by Hochsinger are far from conclusive. It is to be remembered that the thymus shadow from its anatomic location merges with the shadow produced by the sternum, spinal column, and particularly with the great thoracic vessels. A definite enlargement of the thymus could not be differentiated accurately unless the thymus enlargement extended laterally beyond the great vessels, which is improbable in consideration of the great relative width of these structures in childhood. Anatomic studies have, but uncommonly, shown such a degree of hyperplasia. Furthermore, it is entirely probable that a thymus enlargement may extend antero-posteriorly, rather than laterally, rendering the delineation still more difficult.

A broadening of the shadow above the heart is much more probably due to the thoracic vessels than to an hyperplastic thymus. We have not been able to demonstrate this broadened shadow above the heart, even in cases which gave strong clinical evidence of hyperplasia of the thymus. This has also been the experience of Lange in four cases, in which thymus enlargement was definitely diagnosed clinically.

EXAMINATION OF HEART

The heart in childhood is situated nearer the sternum than in adults, and in the developmental change from childhood to adolescence, there is a gradual displacement to the adult position. This situation near the sternum contracts the retrosternal space between the sternum and the anterior layer of the pericardium. The heart is held in this position by the shorter and tighter inferior and superior sternopericardiac ligaments. This

space can be demonstrated distinctly with the Roentgen ray in lateral views. The more transverse or horizontal position of the heart in childhood results in distinct differences in percussion boundaries. In relation to the bony structures, the heart occupies a higher position due to the higher situation of the liver, the position of the diaphragm, the shorter and broader great thoracic vessels. The attachment of the child's heart to adjacent structures is less firm, resulting in greater mobility and easier displacement. The size of the child's heart is relatively large. This is likewise true of the great arteries of the thorax. The heart and the arterial tree gradually decrease in relation to the body weight as the child passes on to adolescence. Baginsky states that the ratio between the heart volume and lumen of the aorta ascendens is as 25 to 20 in the child; 140 to 50 preceding puberty, and 290 to 61 immediately following puberty, during which latter time the heart increases in weight markedly. Anatomists are agreed that the growth and development of the heart occur in an irregular manner. Two points are generally conceded, namely, that the size of the heart is large in relation to the body weight during the first year of life and again at puberty. Von Dusch asserts, however, that in addition to these periods, there is another period of growth from the third to the seventh year, during which the heart becomes again relatively large. Vierordt states (quoted from Hochsinger) that the heart weight is 0.89 per cent. of the body weight during infancy, but only 0.52 per cent. during adult life. The marked difference between the thickness of the ventricular chambers and the heart weight is important anatomically, but does not influence the physical findings as much as the ratio between the size of the great vessels at the base and the heart. This relatively large volume of the great vessels has its bearings on the percussion borders of the heart, and likewise on the differentiation of the heart, great vessels and thymus from one another with the Roentgen ray.

There are a number of factors which make the percussion of the child's heart a difficult procedure. One cannot fairly compare the cardiac percussion dulness in the child with that in the adult. The changed position of the heart in early life, its more horizontal and higher situation results in a different standard of comparison, even after the relative differences in the size of the body has been taken into consideration. This altered situation of the heart brings the right edge of dulness further to the right, a fact which is often ascribed to a disproportion in size between body and heart in childhood. There are particular reasons which make the determination of each heart border peculiarly difficult in the child. The upper heart border has to be demarcated from the great vessels of the thorax, which in the child are relatively large in size and volume, from enlarged bronchial glands, an enlarged thymus, and the dull area described by Hamill. The left cardiac border is difficult of determination for two reasons chiefly. There is a tendency, fixed naturally and by habit, to percuss out the left heart border in children, as well as in adults, with a percussion stroke having its axis perpendicular to the body wall. The more or less circular or cylindrical shape of the child's chest results in a considerable degree of distortion of the cardiac outline, which can be obviated by making the percussion stroke for the left border parallel to that for the right border, regardless of our tendency to percuss at the right angle to the body surface. An impairment of

the note along the left edge of the heart, especially along the lower part, may result from gastric or intestinal dilatation, even when it is not apparent. The right border of the heart is peculiarly difficult to map out, because the higher position of the liver on the right side may influence the normal resonance of the lower right front. Two other factors influence the position of the right border, the diminished resonance normally obtained over the sternum and, secondly, what we believe to be an actual slight degree of normal variation, due to the greater and freer mobility of the child's heart.

There is a considerable difference of opinion as to the advisability of attempting to percuss out the superficial heart dulness or the actual size of the heart. In adults, the percussion of the actual borders of the heart is so difficult that it is not ordinarily attempted. In children, better results can be obtained with the actual heart borders. This does not imply that the determination of the size of the heart in children is easy, either relatively or absolutely. On the contrary, the reverse is true, and to map out the heart percussion borders accurately is truly a difficult procedure. We know from the numerous experiments of Oestreich on the cadaver that the superficial heart dulness in adults can be determined with great accuracy. Superficial dulness maps out simply the lung borders and not at all the shape or size of the heart. It is stated by Mayer and Milehner that there is often a moderate degree of emphysema of the lung edges in young children, which may lead to erroneous conclusions. There are many more objections against the superficial dulness in children than in adults. There are greater numbers of functional disturbances and constitutional anomalies affecting the child's heart than the adult and the superficial dulness helps in no way, or at least but slightly, to determine these. Such disturbances of childhood, which have been described, are the so-called adenoid heart, the *cœur de croissance* of Germain, the relatively small heart of Bouchard, the heart of the narrow-chested of Kraus (*Herz der Engbrustigen*), the constitutionally weak heart of Martius, the dilatative heart weakness of Neumann, and functional disturbances after acute infections.

There are still more important reasons for determining the actual heart size in children. In adult life that part of the heart covered by the chest wall area from the fourth to the sixth costal cartilage and rib is fixed, determined and stable. In childhood this area is changing with the body development, but not with a definite rate of progression. It is impossible at any given age to tell how far the superficial heart dulness is due to the heart itself, or to natural changes of development, which are continually occurring. Likewise, in adults, the relationship between heart and the great vessels, thorax, and mediastinum, are fixed and definite. Not so, however, in childhood, as the bony thorax is constantly developing by a chondro-epiphyseal growth which widens the thorax and, as a result, any bony landmark used to express heart size in children is indefinite and variable.

It is because of this lack of definitely fixed bony landmarks that we should use actual figures of measurement for describing heart borders rather than the relation to a certain variable rib or arbitrarily drawn line. This is true particularly of the lateral borders, if not of the upper. This is one of the points which we desire to emphasize most strongly, and the lack of such

custom has, in our opinion, been one of the causes for the present great difference of opinion concerning heart borders in children. A mapped-out area of cardiac dulness expressed in centimeters from the fixed mid-sternum, a line not subject to variations due to irregular and varying degrees of growth, expresses the heart size without equivocation or possibility of misinterpretation. Sahli's measurements in terms of relation to ribs and nipples may be taken as average boundaries. He gives the superficial area of dulness as follows: above, the upper border of the third interspace; left border, a line drawn between the parasternal and mammary line; right border, the left border of the sternum. The deep heart borders are as follows: above, the second interspace or the lower border of the second costal cartilage; left border, at or beyond the mammary line; right border, at the right of the parasternal line or beyond. These borders are for children, not infants or very young children. Expressed in centimeters, Sahli's figures are as follows:

Age	Widest diameter.	Right.	Left.
2 to 6 years . . .	10.5 cm.	3 cm.	7.5 cm.
7 to 12 years . . .	11.5 cm.	3 cm.	7.5 cm.

Troitzky, summing up various measurements, arrives at the following averages. He has, however, taken the width of dulness at the upper part of the sternum and not at the level of the nipples.

Age	Width.	Right.	Left.
2 to 6 years . . .	7.5 cm.	2.5 cm.	5.0 cm.
7 to 12 years . . .	9.0 cm.	3.0 cm.	6.0 cm.

This shows the lack of uniformity, a desideratum which is much to be desired, if the average clinician or general practitioner is to have recourse to an accepted standard.

Reyher's figures with the orthodiagraph are as follows:

Age.	Width.	Right.	Left.
2 to 6 years . . .	8.2 cm.	3.0 cm.	5.5 cm.
7 to 12 years . . .	11.1 cm.	3.5 cm.	7.6 cm.

In the seventy cases which we have rayed by the teleoroentgenographic method in heart measurements in centimeters were as follows:

Age.	Width.	Right.	Left.	Distance to left of median line of broadest vessel shadow.
3 months	5.4	2	3.4	3.0
2 to 6 years	7.0	2.5	4.5	3.0
7 to 10 years	9.5	3.5	6.0	4.0
11 to 12 years	10.5	3.5	7.0	4.0

It has not been possible for us to compare the roentgenographic measurements of each of these cases with the measurements obtained by heart percussion, but the average figures obtained by us show that our greatest percussion error has been in determining the breadth of the great vessels of the thorax. The right and left borders of the heart can be determined quite accurately by percussion as checked up by the Roentgen examination. The greatest source of error in determining the left border can be overcome, if the axis of the percussion stroke is kept parallel with the axis of the right border percussion stroke and is not made at right angles to the body wall. These figures show what is rather unexpected and surprising, namely, that it is the right border in children that is most accurately demarcated by physical diagnosis and not the left.

EXAMINATION OF LUNG

It is very desirable that one should have a clear understanding of the factors underlying lung percussion sounds, if their interpretation is to be accurate. There is still some difference of opinion concerning the

part played by the thoracic wall in the percussion sound. It is not to be denied that the vibration of the thoracic wall constitutes at least a partial factor of the lung sound. The difference in flexibility and elasticity between the child's thoracic wall and that of the adult accounts in large measure for the normal difference in sound in childhood and adult life. The other factor, the vibration of the bronchial air column, is not subjected to so much difference at the two periods in life, except in the amount of air and the size of the column. If the sound were proportional to the amount of vibrating air alone, with modification by other factors, there would be greater resonance in adult life than in childhood, which is not the case. On the other hand, the great influence of the thoracic wall factor is shown by the change of note in the child when the lateral lying-position is assumed and the chest wall is in contact with the bed. The resultant diminution of thoracic wall vibrations produces a distinct dulling of the percussion note. The same great flexibility and elasticity of the thoracic wall in childhood explains the less resonant percussion note at the end of deep inspiration in children old enough to breathe as directed. Full lung expansion increases the tension of the chest wall, lessens its elasticity and vibratory power, and, notwithstanding the greater amount of air in the lung at the height of inspiration, it is not great enough to counterbalance the diminution in chest wall vibration.

The normal lung sounds in childhood vary from those in adult life, even in other respects than the degree. Posteriorly, the percussion sound in childhood is more resonant than in adult life. This is due to several factors, including the more posterior position of the lung in childhood, relatively speaking. There is a greater volume of air-containing lung tissue nearer the surface of the dorsal body wall. It follows from this that the anterior edges of the lungs should be further separated, relatively, than in adults and this is the case. This is likewise one of the anatomic facts explaining the greater exposure of superficial heart dulness in children. Laterally, the thoracic resonance approaches that obtained over the infraclavicular region anteriorly, until one passes below the sixth rib.

The area of dulness under the inner third of the left clavicle, described by Hamill, has been carefully looked for in every case examined by us, and especial attention has been paid to this area on x-ray plates. Hamill states that, contrary to text-book teaching, it is the left and not the right front which shows a relative impairment of resonance. This area of dulness is indefinite in shape and size, but is to be found, according to Hamill, "beneath the inner third of the clavicle, which (area) sometimes extends outward to the mid-clavicular line, and always downward until it fades into the cardiac dulness." This area of dulness is "constantly present up to the age of 9 or 10 years." Hamill does not give an entirely satisfactory reason for this area of relative dulness, but believes it has to do with the more posterior position of the lungs in childhood and the more exposed condition of the large thoracic vessels. It has not been possible for us to determine this area of dulness as described. We have encountered impaired resonance over this region, but not with sufficient regularity and certainty to consider it a normal condition. According to the studies of Blumenreich mentioned above, there is an asymmetrical area of impaired resonance, reaching farther to the left than to the right, but only up to the sixth year. The location of that part of

the thymus dulness to the left of the sternum and under the inner end of the clavicle corresponds to a part of the area described by Hamill, although it does not extend outward or downward so far. Again, the more posterior position of the lungs in childhood applies equally to both sides, and the measurements by Feer show that at the age of 4 to 5 the right chest circumference exceeds the left by as much as 1.5 cm. The possibility of enlarged bronchial glands necessitating a differentiation will be touched on below. It is our belief, after a careful investigation of this point, that there is no normal impaired resonance directly under the left clavicle. It has been our experience, however, that dulness from the heart and great vessels rises to the upper edge of the left second costal cartilage in young children, and that between this point and the clavicle there is an area, which, while normally resonant to the lightest percussion, may appear relatively impaired in resonance, if the percussion stroke is at all strong. The high position of dulness at the second left costal cartilage in young children is in full harmony with the results obtained with the Roentgen examination. Furthermore, in the area between the great vessels and the clavicle, the Roentgen examination has not revealed anything which could reasonably account for impaired resonance over this area. It is much to be desired that this observation of Hamill be further confirmed. It would seem that such an area of impaired resonance at such an accessible point would not have escaped general observation and acceptance. The diagnostic significance of relative dulness at this point is considerable and the differentiation from the various pathologic conditions that can cause such dulness is of sufficient importance to merit close observation by others.

EXAMINATION OF BRONCHIAL GLANDS

The great frequency of enlarged bronchial glands in childhood makes a trustworthy method of diagnosis very desirable. No method of physical diagnosis can compare with the Roentgen rays. The value of the hitherto described methods of diagnosis have been, as a rule, dependent on the size of the glandular mass. The anatomic landmarks of the bronchial glands are the lower end of the manubrium sterni anteriorly and the fifth dorsal vertebra posteriorly. Dulness or impaired resonance in this region would be therefore in the region of the thymus, the impaired resonance produced by the sternum, the great vessels of the thorax, and the area of Hamill. Localized patches of dulness in the second interspace suggests enlarged bronchial glands, and the tendency of this form of dulness is to extend transversely. It has been advised that attempts to demonstrate such patches of bronchial gland dulness should be made at the end of forced expiration. Curschman and Schlager found dulness due to enlarged bronchial glands in adults, but this is certainly an uncommon finding. There have been a number of signs described to aid in the diagnosis of enlarged bronchial glands, but which have only a secondary value. Camp described relative dulness over the spinal processes of the fifth and sixth thoracic vertebrae. Petruschky's spinalgia is an area of tenderness between the shoulder-blades, but has not been found to be of great value. The better known sign described by Eustace Smith is not trustworthy. This sign consists in a venous hum audible over the manubrium during hyperextension of the neck. Thus, if the child in the erect posture bends the head backward so that the eyes look toward the coil-

ing, the hum will appear in the positive cases, owing to the compression of the left innominate vein between the manubrium and the glandular mass. The great frequency of venous hums in children without glandular enlargement render the interpretation of this sign particularly difficult.

CONCLUSIONS

The following conclusions are drawn from this work:

1. The Roentgen examination affords an unexcelled method of controlling the results obtained by physical diagnosis.
2. The teleroentgenographic method reduces the error by distortion to a negligible quantity and is well adapted to routine work.
3. The anatomic location of the normal thymus renders its differentiation by means of the Roentgen rays improbable.
4. The demarcation of heart-borders in terms of bony landmarks does not offer a fair comparison with adults, owing to the continual change in the development of the bony structures.
5. Absolute heart dulness in children can be quite accurately determined by very light percussion, and the results confirmed by the Roentgen rays.
6. The relatively great volume of the great thoracic vessels in young children offers the greatest difficulty in determining the size of the heart by physical methods only.

7. Extremely light percussion has not given us normal impaired resonance between the upper borders of the great vessels and the clavicle. The Roentgen examination has confirmed the absence of a density of tissue which would produce such dulness.

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ABSTRACT OF DISCUSSION

DR. FRANK SMITHIES, Ann Arbor, Mich.: From my experience in teaching physical diagnosis to medical students I have long felt the need of such a piece of work as this. The literature abounds in generalities. There is little said in the text-books or in monographs with respect to the findings spoken of. I was particularly interested in the roentgenographic findings in respect to the thymus. Three cases of thymus death have impressed on me the need of thorough physical examination of the child's thorax before such a simple operation as one on the tonsils or adenoids. In two cases the physician had entirely neglected the examination of the child's thorax except putting the stethoscope over the visible heart beat and saying that that organ was all right. Sometimes a radiograph will give admirable information in regard to the thymus, but it has been my experience that the thymus could be mapped out very readily in infants and in the newborn when the attempt is made. I urge on every one to make careful examination of the thorax before operating on children. The heart is infrequently examined and, where it is examined, unless done systematically, the findings are practically worthless. As to the findings in the mediastinal region, I think often anomalous conditions of the heart and blood-vessels can be traced to glandular conditions in the mediastinum.

Etiology of Intussusception.—H. J. Morgenthauer states that the essential cause of intussusception is irregular peristalsis, particularly atony of one part with increased activity of adjoining parts of intestine. It may thus follow any limited, sudden, and severe peristalsis.—*Am. Jour. Obstet. and Dis. of Women and Children.*

PATHOLOGY AND BACTERIOLOGY OF ACUTE ANTERIOR POLIOMYELITIS *

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I. PATHOLOGY

A review of the literature shows records of about 100 autopsies on cases of poliomyelitis, nearly one-half of which were performed years after the acute attack.

Our studies include material from six autopsies performed on cases occurring in the Minnesota epidemic of 1909. In the article the cases are reported in detail.

The process as a whole follows a definite and specific course. Whatever may be finally shown to be the agent of infection, its "optimum locus" is in the perivascular lymph channels of the anterior portions of the cord, especially those located in the gray matter. From this site the reaction spreads on the one hand to the surrounding tissue spaces of the gray matter and on the other to the lymph channels of the white matter and pia, often involving the posterior portions of the cord.

CONCLUSIONS

1. Acute anterior poliomyelitis is a specific infectious disease characterized pathologically by general toxemia affecting the parenchyma of the heart, liver and kidneys and the lymphoid tissues of the body, but spending itself locally on the structures of the spinal cord.
2. Grossly the cord is congested and on transverse section shows softening and often hemorrhages in the gray matter of the anterior horns.
3. In the cord the infectious agent is located in the perivascular lymph channels of the anterior portions, especially invading the gray matter, but extending to the white matter and pia and occasionally the posterior horns. The brain stem and basal ganglia may be involved. In the cord the medulla and cervical and lumbar swellings are particularly affected.
4. The characteristic lesion consists of collections of cells in the perivascular and pial lymph channels and tissue spaces of the anterior horns. Of these cells the polymorphonuclear leukocytes appear early and are relatively few in number. They are soon displaced by endothelial cells arising from proliferation of the lining endothelium and lymphocytes coming from the blood and lymph streams.
5. Edema of the interstitial tissue and degeneration and destruction of the ganglion cells are always present.
6. The vessels are congested, their walls degenerated, and the capillary branches in the gray matter irregularly distended and often ruptured, giving hemorrhages, which always intensify markedly the amount of destruction. Thrombosis was not observed.
7. Early degeneration of nerve fibers from the anterior roots is a constant feature.
8. Stains for micro-organisms were uniformly negative.

II. BACTERIOLOGY

Specimens from twenty cases of poliomyelitis were examined by the laboratory division of the Minnesota State Board of Health during the 1909 epidemic.

The cultural and morphologic characteristics of Geirsvold's diplococcus were found to coincide with the description given by Drs. Fox and Rueker.

Geirsvold's diplococcus was found in purity in the spinal fluids from seven cases (two died, see Dr. Robertson's Cases 1 and 3), and also in cultures from the blood, mouth, lung, spleen, kidney, middle ear and brain substance of Case 3.

The tests to determine the pathogenicity of these pure cultures confirmed the opinion of other observers that Geirsvold's diplococcus is not a causative factor in poliomyelitis.

* Authors' abstract of a paper read before the Sections on Nervous and Mental Diseases and on Pathology and Physiology of the American Medical Association, St. Louis, 1910. The complete article will appear in the Transactions of the Sections and in the Archives of Internal Medicine.

The spinal cords of thirty-eight animals experimentally infected failed to show specific lesions of poliomyelitis though in some animals motor disturbances developed which might have been mistaken for the symptoms of poliomyelitis. The presence of specific lesions was regarded as the crucial test.

We believe that symptoms of inoculated animals must be supported by pathologic findings to have any value as experimental evidence.

THE SURGICAL TREATMENT OF INFANTILE SPINAL PARALYSIS *

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To one who thoroughly appreciates the pathology of anterior poliomyelitis the surgical treatment of the chronic stage of this affection yields satisfactory and gratifying results. A certain amount of irreparable damage has been done the spinal cord, in consequence of which the muscular power of the affected part has been correspondingly diminished. One may not hope to restore such a member to its normal condition; one may hope, however, to overcome deforming tendencies resulting from loss of muscular balance and to establish conditions such as will enable the part to functionate in the most efficient manner permitted by the existing degree of paralysis.

OBJECTS OF OPERATION

The objects of operation in this affection are two:

1. Improvement of form in the deformed member (by forcible correction, tenotomy, fasciotomy, myotomy, osteotomy, wedge-shaped excision of bone, and bone excavation).
2. Improvement of function in the non-deformed, or corrected, member.
 - A. Through restoration of power to the paralyzed muscle (by nerve anastomosis).
 - B. Through restoration of muscle balance (by muscle and tendon grafting and transplantation).
 - C. Through securing greater stability in the paralyzed member (by arthrodesis, astragalectomy, silk ligaments, tenodesis, fasciodesis, and removal of skin flaps).

I. IMPROVEMENT OF FORM IN THE DEFORMED MEMBER

It is a deplorable fact that, while deformity is generally conceded to be, as a rule, preventable by the early, proper and persistent use of passive motion and retention apparatus, the majority of patients consulting the orthopedic surgeon for this affection present malpositions of greater or less degree.

Deformity is most complex in its causation. One of the most essential factors is loss of muscle-balance resulting from unequal distribution of paralysis; it is well recognized clinically that a generally affected part may retain an approximately normal form, while paralysis of a single muscle or group of muscles, as, for example, the peroneals, may give rise to a severe malposition. To this loss of balance, which through unopposed muscular action permits of gradual lengthening of the affected and shortening of the unaffected muscles, are added the effects of gravity, of habitual posture and of functional use; finally structural adaptation takes place, fixing the part in the deformed position. When a malposition has been allowed to persist for some time, whether structural

adaptation has taken place or not, a new factor, of great importance in the proper estimation of the degree of the paralysis, is added: this is the overstretching of the weakened muscular tissue. That damaged nerve cells may recover sufficiently to functionate, but in the meantime the affected muscles become incapacitated by overstretching and atrophy from disuse, is a fact which, though well known to specialists, does not seem to be recognized by the mass of the profession and which certainly is very frequently disregarded by all in judging the results of operative measures. It is impossible by any tests at our command to judge accurately of the power of such overstretched muscles²; only by maintaining them in a position of maximum relaxation for a sufficient time to permit retraction to take place can we be definitely certain of their condition. Hence, any operation for the correction of deformity necessarily includes long-continued retention in an overcorrected position, and this, furthermore, must obviously precede measures for the improvement of function.

For any cases which have proved intractable to passive motion and mechanical measures a variety of surgical procedures—forcible correction, division of muscles, tendons, ligaments and fasciæ, and operations on the bones—are at our disposal, the choice of which will vary according to the mechanical conditions to be met, a combination of the various procedures being, as a rule, required.

Forcible Correction.—Forcible correction, performed manually or with the aid of various forms of apparatus, yields a uniform stretching of all contracted soft parts, permits the lengthening of deep-lying structures not readily accessible to the knife, and restores the muscle belly to its former length, instead of causing a further shortening and so a further decrease in excursion, as does simple division. With increase in the amount of force used, however, there is increasing danger of injury to soft parts and bones; moreover, under certain conditions one deformity may be increased while another is being corrected. One example of this will suffice: Given a case of talipes equinovarus, any amount of force applied to the sole can have no other than a beneficial effect on the contour of the foot, while in talipes equinovarus, on the contrary, the force used to correct the equinus will necessarily tend to increase the valgus; hence, in this instance, operative lengthening of the tendo Achillis would be preferred.

Tenotomy.—While subcutaneous tenotomy after the original method of Stromeyer, when practiced in suitable cases, ordinarily yields entirely satisfactory results, yet in infantile spinal paralysis there are certain considerations which favor the choice of other methods. In stating these considerations the tendo Achillis only will be mentioned, as it is the one most frequently requiring division.

Simple tenotomy does not permit control of the extent to which the tendon is lengthened, yet this is a matter of considerable moment, for the strength of a muscle depends very largely on its tension, its strength being markedly decreased when the normal tension is lost, since a certain amount of force must be expended in restoring normal tension before joint movement can take place. Hence, in cases of corrected paralytic talipes equinus in which the tendo Achillis has been divided by the old method, it is not uncommon to find the power

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Silver, David: Paralysis of the Shoulder, *Am. Jour. Orthop. Surg.*, November, 1908.
2. Tubby, A. H.: Recent Surgical Methods in the Treatment of Certain Forms of Paralysis, *Brit. Med. Jour.*, March 1, 1906.

of plantar flexion much diminished, so that the patients are unable for months or even years to stand on the toes.³ In an analysis of eighteen paralytic cases in which simple division of the tendo Achillis had been performed from three to eight years before, Hibbs⁴ found serious modification of the function of the calf in eleven; he attributes this to the following factors: First, shortening as a result of the deformity; second, further shortening as a result of the tenotomy, and third, still further shortening from yielding of the bond of union between the divided ends. The control of the amount of lengthening is, therefore, advisable, and this may be secured through lengthening by the open method or by means of the subcutaneous method of Beyer.

Operations on the Bones.—Should bone changes have become so marked that forcible correction and division of soft parts are not sufficient to overcome deformity, this may still be accomplished through osteotomy, wedge-shaped excision, or bone excavation (Ogston's operation⁵).

While the procedures thus far discussed have for their primary object improvement of form, they necessarily contribute through this to improvement of function, and, when combined with the judicious use of apparatus and muscle development and training, will yield in many cases such satisfactory results that no further operative treatment will be indicated.

II. IMPROVEMENT OF FUNCTION IN THE NON-DEFORMED OR CORRECTED MEMBER

A. Through Restoration of Power to the Paralyzed Muscle (by Nerve Anastomosis)

The restoration of normal nerve impulses to the paralyzed muscle or muscles by means of nerve anastomosis would naturally be the operation of choice were it generally applicable to this affection. While the operation must still be regarded as in the experimental stage as regards anterior poliomyelitis, yet enough has been done to justify certain conclusions.

The operation has here evidently a more limited application than at first supposed. It is ten years since nerve anastomosis was first used in anterior poliomyelitis and five years since the subject was presented before this Association;⁶ yet the successful cases available in literature are not numerous, in many, as is so often the case, the reports being made too early for the final results to be known. The reason for this limited field is to be found in the fact that the paralysis is rarely confined to a muscle group supplied by only one nerve-root or spinal segment, but is in the large majority of cases spread over several spinal segments, and so no nerve or nerve-root anastomosis can be beneficial. For a case to be suitable the lesion must affect an entire nerve-center, while other centers remain free.⁷ Hence, cases in which the operation is indicated are undoubtedly fewer than previously considered.

While in the first burst of enthusiasm the procedure may seem to offer the possibility of ideal results, yet a study of the literature indicates that such is not the case. There is admittedly a certain danger of injury to the

healthy nerve, and so, in the event of failure of the anastomosis, a danger that the condition following operation may be worse than that before: this may result from traumatism at the time of operation, failure of cut fibers to repair, or subsequent impairment from scar formation. Spitzzy⁸ admits that there is a loss in the power-giving nerve, but asserts that it is not permanent. Stoffel,⁹ in operating for restoration of the deltoid chose for the power-giving nerve the branch to the middle head of the triceps, since this could be sacrificed in the event of failure without great loss. Results further fall short of the ideal in that complete restoration of power, so far at least, has not been the usual result: this may be due to choosing a nerve that has itself been slightly affected, to imperfect regeneration in the power-receiving nerve, to injury from scar formation, or to failure of the new center to learn its function.

Early operation offers the best chance of success: the longer the duration and the fewer the signs of life in the affected muscle, the less the chance of recovery, for the muscle finally becomes changed into a fibrous, fatty mass from which restitution to the highly organized nerve-muscle organ is no longer possible.⁶ Four to six months, in some cases nine months, is usually given as the most favorable time, yet operation as early as this is open to the objection that the greatest possible degree of recovery has not yet been attained. Spitzzy, perhaps the most ardent advocate of the procedure, admits that in a few cases recovery might have occurred without the anastomosis.

The newly developing function should encounter as little resistance as possible: hence overcorrection of deformity is a necessity, and this should be performed at a preliminary sitting for the reasons already stated. The combination of correction of deformity, lengthening and shortening of tendons, and even tendon grafting with nerve anastomosis at the same sitting, as has been reported, must be regarded as unscientific, since it is difficult under these circumstances to determine accurately to which procedure improvement is due; where nerve anastomosis is used tendon transplantation should be held in reserve as a secondary operation in the event of failure or of partial success of the anastomosis. As a further step in diminishing resistance to the returning function, alcoholization of the nerve-supply to the active opponents has been used by Allison and Schwab.

The upper extremity at present apparently offers the most promising field for nerve anastomosis. The hand, which on account of its highly differentiated function has not yielded such successful results after tendon transplantation as has the foot, seems for this same reason to offer more from a successful nerve anastomosis. At the shoulder, also, where there is no muscle capable of fully replacing the deltoid, conditions are admirable for anastomosis on account of the accessibility of the nerves, and a study of the reported cases shows that the operation in this region has given a relatively high degree of improvement.⁹

B. Through Restoration of Muscle Balance (by Muscle and Tendon Grafting or Transplantation)

The restoration of muscle balance by means of tendon and muscle grafting or transplantation has been so thoroughly tested that its efficacy in the treatment of the

3. Lange, F.: *Joachimsthal's Handbuch der Orthop.* Chir., 1905, 1907.

4. Hibbs, R. A.: *Subcutaneous Division of the Tendo Achillis*, etc., *New York Med. Jour.*, July 10, 1902.

5. Bartow, B.: *Operative Remodelling of the Tarsus*, etc., *Am. Jour. Orthop. Surg.*, vii, No. 4.

6. Spiller, W. G., and Frazier, C. H.: *Treatment of Acute Anterior Poliomyelitis by Nerve Transplantation*, *THE JOURNAL A. M. A.*, Jan. 21, 1903, p. 169.

7. Tubby, A. H.: *Surgical Treatment of Infantile Paralysis*, *Brit. Med. Jour.*, Sept. 26, 1908 (Discussion).

8. Spitzzy, H.: *Fortschritte auf dem Gebiete der Chirurgie der peripheren Nerven*, *Wien. klin. Wchnschr.*, 1909, No. 46.

9. Stoffel, A.: *Neue Gesichtspunkte auf dem Gebiete der Nerven-transplantationen*, *Ztschr. f. orthop. Chir.*, 1910, xxv.

chronic stage of anterior poliomyelitis is to-day beyond question.

Tendon transplantation is no exception to the rule that every operative procedure has its limitations. In the beginning too much was expected of it. It brings no increase of power, except through subsequent muscular development; it merely permits the restoration of an important lost function at the expense of one or more less important ones, thus securing improved action in a part which is still a paralyzed one. If the paralysis be extensive the muscular tissue remaining will not be sufficient to ensure control after balance is restored; hence the method is obviously not applicable to cases of this character except when combined with other procedures.

In the early operations the use of slips of tendons often yielded nothing more than the benefit to be derived from their action as "additional ligaments," since independent action, without which there can be no restoration of function, was rarely obtained; moreover, relapse through gradual yielding of the bond of union or stretching of the weakened receiving tendon was common.¹⁰ Not only have these causes of failure been overcome, but the usefulness of the method has been further extended through the transplantation of whole muscles or of parts of muscles readily divisible (triceps suræ, extensor digitorum, etc.), the use of silk extensions where the tendons are not of sufficient length, and insertion directly into the periosteum or bone at the most advantageous point.

The operative technic is comparatively simple and easily mastered by anyone acquainted with modern surgical methods, but the planning of the operation requires an intimate knowledge of the disease and an acquaintance with human mechanics which can be acquired only by special study. The lack of ability properly to determine the extent and the degree of the paralysis, definitely to estimate the amount of muscular tissue which must be transplanted in order to restore balance, and wisely to combine other operative procedures¹¹ with that of tendon transplantation, fully explain the failure of many surgeons to secure satisfactory results and make it certain that there will always be bad results.

The importance of an extended period of postoperative treatment, including especially protection of the transplanted tendon and careful muscle training,¹² has been so frequently emphasized that it needs no further mention.

As regards the adaptability of the operation to the various regions, the foot is preeminently the domain of tendon transplantation. Here the movements which are absolutely essential are few in number and relatively simple in character; of those required, plantar and dorsal flexion are of first importance, supination and pronation next, while control of the toes is not necessary in shoe-wearing people.³ Hence, it will usually be possible, except where plantar flexion is lost, to secure a normally balanced foot; with lost plantar flexion, however, full restoration is impossible, since the combined strength of all the muscles on the back of the leg is only one-fourth that of the calf (gastrocnemius and soleus). Peroneal paralysis, one of the most common types, which gives rise to a talipes varus or equinovarus, is perhaps the most favorable condition in the foot for transplantation. In mild cases the extensor proprius hallucis may

be transferred to the outer border of the foot, being attached to the cuboid; in marked cases, where the balance is more severely disturbed, the tibialis anticus may be used, if the posticus is normal; in this deformity weight-bearing is an aid in protection against relapse. Talipes valgus is not so favorable as varus on account of the greater power required for adduction and the deforming tendency of weight-bearing. In paralysis of the calf, transplantation alone will rarely do more than prevent a severe degree of calcaneus, but when combined with procedures which enable the muscles to act at a greater mechanical advantage excellent results are secured.¹³

At the knee the final results of substitution for the paralyzed quadriceps have been reported by Böcker,¹⁴ as follows: Transplantation of the biceps and either the semitendinosus or semimembranosus, one flexor being left to prevent a genu recurvatum, gave the best results, almost normal extension with a good and steady gait being secured in most cases; the combination of the sartorius or the tensor vaginæ femoris with the semitendinosus or semimembranosus was less efficient, yielding only 100 to 130 degrees of active extension; the use of the sartorius or the tensor alone gave only moderate improvement, for, while it was possible for the patient to take a few steps on an even surface, apparatus was required for long distances.

In the region of the hip the results obtained by transplantation have so far been slight. Lange¹⁵ has restored the power of abduction in complete paralysis of the gluteus medius and minimus by attaching the upper end of the vastus externus by means of silk strands, arranged in a fan-shaped manner, to the crest of the ilium; three out of four patients so treated were able to lift the leg when lying on the unaffected side, and the gait was greatly improved.

In the hand, where each muscle plays a definite part in the movements of precision here required, the restoration of any lost function can be purchased only at a high price; furthermore, independent action of the transplanted muscle is essential and a longer period of muscle training is required than is the case in the restoration of the coarser movements of the lower extremity. This is sufficient explanation of the lessened efficiency of transplantation in this region. Moreover, on account of the less frequent affection of the upper extremity (one to eight as compared with the upper), opportunity for working out the problems here involved is much less.

The chief attempt in the upper extremity has been to replace the paralyzed deltoid. The difficulties to be met consist, first, in the fact that the different portions of the deltoid have different functions, and, second, in the lack of sufficient muscular tissue for substitution. A portion of the trapezius, the muscle usually chosen, will obviously replace the action of only one part of the deltoid; when this is supplemented by a portion of the pectoralis major a better result may be obtained, but full replacement would seem to be an impossibility. While the operation, therefore, has resulted in considerable improvement, even in some cases enabling the patient to elevate the arm above the shoulder, it falls far short of full function.

10. Silver, David: Causes of Failure in Tendon Grafting, Pennsylvania Med. Jour., August, 1907.

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12. Lovett, R. W.: Treatment of Paralytic Deformities, Boston Med. and Surg. Jour., April, 1910 (Bibliography).

13. Whitman, R.: Further Observations on the Treatment of Paralytic Talipes Calcaneus by Astragalectomy, etc., Ann. Surg., February, 1908.

14. Böcker, W.: Endresultate der Sehnen transplantationen bei Arch. f. klin. Chir., 1909, xci, No. 1.

15. Lange, K.: Der plastische Ersatz der Gluteus medius und minimus, Zschm. L. orthop. Chir., 1906, xvii.

C. Through Securing Greater Stability in the Paralyzed Member (by Arthrodesis, Astragalectomy, Silk Ligaments, Tenodesis, Fasciodesis, Removal of Skin Flaps, etc.)

Arthrodesis.—When all the muscles controlling a joint are paralyzed, or in some instances in which the remaining power is not sufficient to ensure control, the operation of arthrodesis, in which the production of an artificial ankylosis is sought, is advisable in order to free the patient of all apparatus or permit the use of a less cumbersome form. Arthrodesis should never be considered until the use of those conservative measures known to be essential have been persisted in for a sufficient time to remove all doubt that the paralysis is permanent, nor should it ever be performed unless it is certain that the expected result will exceed the damage; that is, that the stiff joint will be a lesser evil than the flail joint.¹⁶

The adaptability of the various joints for the operation is in the order of ankle, knee, shoulder, hip, elbow, wrist; operation on the last two is seldom performed.

The operation is peculiarly suited to the ankle, on account of the character of its articulations and its weight-bearing function. It may be performed between the tibia and the astragalus alone, the usual procedure, or with this may be combined arthrodesis between the astragalus and the os calcis,¹⁷ or at the mid-tarsus, the rigidity of the foot being thus varied according to the needs of the case. Bony ankylosis or strong fibrous union is necessary; the latter gives a more elastic foot but carries with it the danger of yielding under use. Operation on patients under 10 is not so likely to yield satisfactory ankylosis on account of the amount of cartilage present in the joints of those under this age.¹⁸ When proper precautions are taken the number of failures is small, and results are both gratifying and permanent, the disadvantages being only those incident to the rigidity; that is, a lack of elasticity in the gait, some difficulty in walking on an uneven surface, and perhaps more early tire. In cases in which there is some muscle power left, but not enough to ensure control of the foot after transplantation alone, arthrodesis of one or the other joint may be combined with transplantation and will be of especial service where only fibrous ankylosis is secured.

At the knee pathologic ankylosis is so common that the advantages and the disadvantages of an arthrodesis of this joint will be apparent to all. The decision should be left to the patient; hence it is best not to perform the operation in children. The condition is so well controlled by apparatus which will permit bending of the knee in sitting that this will usually be preferred, except in the very poor. Where both sides are affected, arthrodesis of one knee only is indicated.

While arthrodesis of the hip is not common, yet under certain conditions it is of distinct value, since muscle and tendon transplantation does not offer much in this region. Where both hips are paralyzed the production of ankylosis in one, which will usually be fibrous, will enable the patient to get on his feet. The method suggested by Albee for operation in osteo-arthritis should be a distinct addition to the technic of arthrodesis of the hip.

The shoulder, when the scapular muscles are unaffected, yields excellent results from arthrodesis. Vul-

pius,¹⁹ who reports twelve cases, had only two failures, and obtained bony ankylosis, which is to be sought, in 60 per cent. The average active motion possible in his case was 75 degrees of forward elevation, 60 degrees of side elevation and 25 degrees of backward elevation; marked improvement in the atrophied biceps and triceps was observed.

Astragalectomy.—On account of its lack of muscular attachment the astragalus is a factor in instability at the ankle, and hence its removal may be indicated. Astragalectomy is one step in Whitman's operation²⁰ for paralytic talipes calcaneus; when this is done the foot can be displaced backward, a procedure which gives improved stability and better leverage for the muscles which are transplanted into the heel.

Silk Ligaments, Tenodesis, Fasciodesis.—The chief objection to the older method of tendon grafting lies, as has been mentioned, in the fact that the improvement gained is often only that due to the action of the grafted muscle as an "additional ligament," independent action not being secured. Following out this idea, several methods have been suggested for directly utilizing the tendons of paralyzed muscles as ligaments, both as a supplementary operation and to obviate the necessity for an arthrodesis. The proximal ends of the tendons have been sutured to the bone (tenodesis of Codavilla-Reiner) or to the fascia (fasciodesis of Vulpinus). The obvious objection to this is that the degenerated tendons will stretch and the method thus give only temporary improvement. The use of silk ligaments, a method at once simple and efficacious, yields a permanent fixation. These silk ligaments are of service in various joints but are in most common use at the ankle, where they are especially valuable in preventing toe-drop. In this condition, which may be taken as the type, the foot is simply suspended from the tibia by two double strands of silk; one double strand is quilted into the periosteum on the front of the tibia and then carried to the scaphoid, where it is sutured directly to the bone, while the other double strand passes from the same point to the cuboid.²¹ Nature encapsulates the strands of silk and thus the ligaments are formed. Insertion directly into the bone must be at one end only to allow for adaptation in growth. This method of fixation may be used early in treatment, before other measures are indicated, for the purpose of removing all strain from weakened muscles and so giving them a better chance to recover; later in the course of treatment it may be employed when no muscle available for transplantation is present and as a substitute for arthrodesis; it is also of frequent service as an aid to other procedures.

Skin Flaps.—A very useful operation for overcoming the tendency to deformity is the removal of skin flaps,²¹ which recommends itself on account of its simplicity. If the anterior muscles of the leg are weak, an oval piece of skin is removed from the top of the foot of such size that when the edges are approximated and accurately sutured the foot will be held in the desired position of dorsal flexion; by slightly varying the location of the flap to one or the other side the foot may be inclined toward pronation or supination. This procedure has the advantage of not interfering in any way with any subsequent operation: as a means of retaining the foot constantly in the desired position and obviating the objections incident to

16. Vulpinus, O.: Über den Wert der Arthrodesis, München. med. Wehnschr., Feb. 18, 1908.

17. Goldthwait, J. E.: An Operation for Stiffening the Ankle Joint in Infantile Paralysis, Am. Jour. Orthop. Surg., v. No. 3.

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20. Scutter, R.: The Use of Silk Ligaments, etc., Boston Med. and Surg. Jour., June 4, 1908.

21. Jones, R.: Arthrodesis and Tendon Transplantation, Brit. Med. Jour., March 28, 1909.

brace treatment it is, therefore, applicable early in treatment and in very young children where other procedures are contraindicated. It may also be combined in other cases with tendon shortening and lengthening, and with transplantation or nerve anastomosis, as an aid in holding the part in an overcorrected position. Similarly, at the elbow the removal of a skin flap is of service in holding the joint in flexion, being in this region preferred by its originator to arthrodesis.

CONCLUSION

With all these measures for the improvement of function, orthopedic surgery of the present has much to offer the sufferers from this pitiable condition of infantile spinal paralysis, and it is rare indeed to find an untreated case in which some benefit cannot be given. Fortunately for us, treatment is most efficacious in the region most frequently affected—the foot. Yet in all regions enough can be gained to more than repay us for all our labor. To secure the maximum improvement a wise combination of the various procedures will usually be required.

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NOTE.—In addition to the authorities already cited, the following have been used:—

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. SILVER AND ROBERTSON AND CHESLEY

DR. ARCHIBALD CHURCH, Chicago: Every general practitioner must hail with delight the renewed activity of our surgical friends in the treatment of these very trying cases. My own experience is not very gratifying in the recommendations I have made for surgical operations in the correction of the deformities secondary to the inflammation of the cord of a poliomyelitic nature.

It has been the almost invariable result that after one or two operations either the patient, or his friends, or the surgeon becomes discouraged; and these operations have not been applied with sufficient frequency perhaps, to give the general operating surgeon much experience with, or much interest in them. The surgical fixation of a joint sometimes results very satisfactorily, especially in the knee or the ankle, yet I think astragalectomy unnecessary, because with very slight orthopedic apparatus the ankle-joint can usually be retained in a satisfactory position.

The recent recommendations of Dr. Schwab, carried out surgically by Dr. Allison, seem to promise something more satisfactory. They are not mutilating or destructive. By temporarily inhibiting the function by the injection of alcohol into the nerve supplying the muscles which have retained their function, and which tend to overact and so to produce the contracture deformities, one is enabled, according to the observations and experience of Allison and Schwab, to build up the power of the more or less atrophic, or completely paralyzed and atrophic muscles, and to secure better positions of the joints. This gives the opportunity for therapeutic massage and passive

and active movements; so that the patient is led to put into play that fraction of power which has been preserved and which under ordinary circumstances is entirely overmastered by the contracture tendency in the stronger group of muscles. The technic is particularly simple. A nerve supplying the given muscles is exposed and alcohol in various strengths, 50 to 90 per cent., is injected directly into them.

With the transplantation of muscles my experience has been decidedly unfortunate. The functional gain has been of minimal value; but if we can in many of these cases obtain the enthusiastic assistance of a manipulator or massage operator, who will devote himself every day for a number of years to necessary manipulations, apparently severe and hopeless cases will frequently present a degree of recovery almost marvelous. I recall the case of a young girl who suffered quite extensive involvement of the upper extremities, trunk and lower extremities. Yet in the hands of an empirical rubber who calls himself a doctor, who has devoted himself to this case for five or six years, this girl has recovered practically after a time when I supposed recovery was out of the question. She now has a fairly plump pair of lower extremities, walks readily and sits up without orthopedic assistance. Some of her friends do not even know that she has been afflicted with a grave disorder. I attribute the results to the physician's attention and the local manipulations of the muscles by massage. Of course orthopedic apparatus had been applied and modified from time to time; various splints and braces have been devised; but the absolute devotion of this man to this case has produced results which I wish we might parallel in others, and thus gives me the courage to say that under such treatment, perhaps with the assistance of the alcohol injections, we may look for better results than we have attained hitherto, and without the necessity of serious surgical intervention.

DR. L. H. METTLER, Chicago: I congratulate Drs. Robertson and Silver on their thoroughly scientific presentation of this subject. Dr. Robertson's paper indicates the beautifully logical way in which our knowledge has grown in regard to the nature of anterior poliomyelitis. We all remember how the disease used to be regarded as primarily an atrophic condition. In a word, the emphasis used to be laid on the wasting of the muscles and of the associated neurons. Then followed the suggestion that embolic and thrombotic obstructions in the terminal branches of the anterior spinal artery were probably the cause, with or without an accompanying inflammation, of the wasting of the anterior cornual cells. Now we have reached the point of recognizing the condition as a form of infective hemorrhagic myelitis, with the most destructive center of the inflammation located in the anterior horns. And finally we are beginning to suspect, on the strongest sort of grounds, that the infection is more or less specific in character.

It seems to me that this calls for a rewriting and reclassification of the disease in most of our text-books. Instead of referring to it as a systemic affection under the general impression that it is a unique and distinct trouble belonging to a particular functional tract of the cord, we should recognize it as merely a variety of myelitis. Abroad they are suggesting the advisability of dropping the "polio" from the name of the disease and calling it "focal myelitis." Whether we are prepared to make so radical a change in a name that has been so long in use may well be questioned. The use of the term "poliomyelitis" for general clinical purposes can do no very great harm if we are careful to keep always in mind that the disease is nothing but a form of infectious myelitis, with involvement, in some cases at certain stages of the process, of other parts of the cord beside the anterior horns, namely, the white matter and the meninges. The atrophic changes, and their disastrous results, which so dominate the clinical manifestations of the disease later on, are more or less secondary or subordinate phenomena in the sum total of its pathology. These atrophic manifestations (and I am speaking especially of the lower motor neurons whose cell bodies nest in the anterior horns) are in all probability analogous to the pyramidal degenerations that occur in the cerebral palsies of childhood. The essential pathology of the infantile cerebral and spinal palsies, especially when due to infective hemorrhagic

inflammation in the gray matter of the brain and cord, is in all likelihood the same and affords strong ground for the contention of Strümpell, more popular in Europe than in this country, that the differentiation of cerebral from spinal infantile palsy is a mere clinical differentiation dependent on the particular functional characteristics of the parts involved.

It seems to me very practical thus to lay the emphasis in infantile palsy on the infective hemorrhagic inflammation rather than on the later and subordinate degenerative processes. The former condition suggests some better hope of managing the disease than the latter conditions. Infections and vascular troubles are always somewhat more amenable to treatment than are progressive degenerations. An early diagnosis, therefore, is more imperatively demanded under the newer conception of the pathology of anterior poliomyelitis; and if the theory be ultimately confirmed that the disease is due to some special germ or toxin, all the more imperative will be the demand for an early etiologic diagnosis; for in the early recognition of the nature and cause of the disease will rest the highest hopes of preventing its spread and further progress both in the individual and in the community. And finally, if we succeed in discovering a serum or other means of overcoming the specific toxin in this form of myelitis, infantile spinal palsy—and perhaps likewise infantile cerebral palsy in some post-natal cases at least—will not be regarded so hopelessly as it has heretofore been under the old atrophic conceptions of the disease handed down to us by Charcot, who was able to study it pathologically only in the late stages. Much will be accomplished in the future in the prevention and treatment of these cases if the bright indications in the newer conception of their pathology and etiology continue to develop.

DR. P. BASSOR, Chicago: I am not surprised that Dr. Robertson finds no thrombosis in his cases, as that condition is exceptional. The question of meningeal involvement brings up the most interesting controversy that is now going on as to the mode in which the disease extends. Of course it is well recognized that in most of the fatal cases there is either an ascending or a descending infection. Most of the fatal cases present the picture of Landry's paralysis. According to Harbitz and Scheel there is a primary meningitis, very slight, with infection of the spinal fluid, and a secondary involvement of the cord along the vessels. Now, Wickmann of Sweden, who has examined about an equal number of patients, does not agree with this, although his findings are principally the same, but he interprets them in an entirely different manner. In all cases the extent of the inflammation is much greater in the cord than it is in the meninges, and it is greater in the central part of the cord, in the gray matter, and in the adjacent white matter, than at the periphery. So Wickmann says that inflammation occurs primarily in the gray matter of the cord. It is an infection with round-cell infiltration in the perivascular lymphatics, and it extends along the lymphatics up and down, so that the cause of the ascent or descent is not a successive involvement of different levels from the meninges, but an extension along the perivascular channels. Harbitz says that there are not enough lymphatic channels to account for that. The extension must be from the meninges. Now if in Dr. Robertson's cases there is a sufficient degree of meningeal infiltration to account for the extension, that would be of course in favor of Harbitz's theory; but if there are many cord segments in which the meningeal changes are minimal, it would be hard to account for the extension at all levels.

There seems to be no doubt that there are cases of this disease due to the same contagium in which we have only a meningitis; it is also true that there are cases of meningitis due to other organisms in which cord changes may be produced that are exactly like those in poliomyelitis. Attention has quite recently been called to that fact by Claude and Lejonne of Paris, and I have seen a man taken simultaneously with symptoms of meningitis and a flaccid paraplegia. That was three years ago, and I saw the man a week ago and he looked like a patient with an old case of poliomyelitis. If it had not been for the presence of the diplococcus found in the acute stage, I would say that it was an old case of poliomyelitis in which there had been considerable meningeal involvement.

DR. A. L. SKOOG, Kansas City, Mo.: I observed a number of cases last summer, while under appointment of the Kansas State Board of Health to investigate the Kansas epidemic of poliomyelitis acuta, both clinically and pathologically. One striking feature of the epidemic in Kansas was a grouping chiefly in bordering portions of two counties in the north-western part of the state. There were also isolated cases throughout different regions of the state. One of the noticeable points of this epidemic was the high mortality rate, about 33 per cent. of the patients dying. All told there were about forty cases in these two counties. Another interesting feature was the number of cases in adults. Adult cases have been reported, especially by Wickmann and others. Wickmann reports a patient aged 67. In this epidemic I was in consultation on one case, that of a woman aged 45, who also had marked cerebral symptoms. She died on the sixth or seventh day of the illness and I was unable to obtain permission to make an autopsy, but I did examine the cerebro-spinal fluid, which showed a lymphocytosis and a few polymorphonuclear cells, with a count of about 30 or 40 to the field of centrifuged sediment. The fluid was absolutely clear and contained no bacteria. No bacteria appeared on culture, on injection of guinea-pigs, rabbits, chickens and two rhesus monkeys. Another feature about this epidemic was the number of cases which puzzled the local physicians in making differential diagnoses from Landry's paralysis. In fact two physicians did diagnose Landry's paralysis; although from observation of this epidemic I believe Landry's paralysis may be considered as a form of poliomyelitis acuta.

In regard to lumbar puncture, it seems to me very important that we should obtain or look for some means of making an earlier diagnosis than we have in the past, and to me the examination of the cerebrospinal fluid has been attractive. I did a lumbar puncture in all the cases in which I could obtain consent, and that was about 7 cases out of 25. In all of them that I examined there was a mild increase in lymphocytes, ranging usually from 5 to 20 per centifuge or sedimented specimen. The fluid was absolutely clear in all the cases examined, and I could find no bacteria.

DR. ARTHUR S. HAMILTON, Minneapolis: The Section is to be congratulated on having the opportunity of listening to these two papers.

As Dr. Bassor has suggested, it has been shown that the cell changes found in poliomyelitis may be found also in other conditions in which there is an acute intoxication. In fact, as far as I know, it is quite impossible to tell the changes which occur in the large cells of the cord in one intoxication from those that occur in another. I have no doubt that in poliomyelitis most of the changes that occur in the cells are due to mechanical disturbance in the circulation, and the consequent upsetting of the nutritional balance of the cells; but I think we are safe in assuming that some of these changes are due to toxins, especially since the same changes can be found in other conditions where there is intoxication without mechanical disturbance in the circulation.

Six weeks ago there was admitted to the Minneapolis City Hospital a young man of 24, who passed through a very ordinary attack of lobar pneumonia, except that it was rather more severe than the average case. Aside from that there were no unusual features until, at the time when the man was about to sit up in a chair, it was discovered that he had no power in his legs. The physician had not observed it before, and the patient himself, though he had recognized the condition, had thought nothing about it, assuming that it was a natural consequence of his illness. When he came to get up he could not flex his thighs on the abdomen and had but slight power of flexion of the foot on the leg. There was no history of pain and, so far as I could make out, there was no disturbance of sensation. The patellar reflex and the Achilles jerk was absent. It did not look to me like a case of peripheral neuritis, although I find a few such cases have been reported as associated with pneumonia. There was very little subsequently of interest in the case and the man recovered quite rapidly. At the end of two weeks the reflexes had returned; he had obtained fair power in his legs; could stand without assistance, and in three weeks could walk out

of the hospital, and has since fully recovered. It seems to me that this is a case of poliomyelitis, not in a technical sense, but in the sense that the lesion is much more likely in the anterior horn cells than in the peripheral nerves.

In reference to the change of name of poliomyelitis, it does seem that the present term is rather misleading. At the same time I think we should hesitate to apply the term myelitis. It is true that the gross manifestation, as we see it, is a myelitis; but all the recent evidences show that we are dealing with a general intoxication, an infection of some sort. Dr. Robertson has brought that out in his statement of the post-mortem findings that there was evidence of acute intoxication in various other organs in addition to the changes which occurred in the cord. It seems to me, therefore, that we should wait for further light on the subject before we attempt another designation.

DR. NATHANIEL ALLISON, St. Louis: As orthopedic surgeons we are interested in these cases chiefly as the final results of a disease and we deal with final results, or hope to deal with them. The investigations recently made in the pathology of this disease makes it seem quite possible that in a few years there will be no more cases of poliomyelitis and no results of this disease to treat. This is a consummation much to be desired. Dr. Silver has gone over in a most systematic and complete way all the things that have been done surgically for the relief of poliomyelitis. He has taken the subject up in such a way as to leave very little to say about it, except in one particular, and that is the use of nerve anastomosis as a relief.

The selection of any operation for the relief of poliomyelitis must be based on a pretty wide experience and knowledge of the mechanical conditions to be brought about after the operation; many papers have appeared on this subject, and many reasons have been given for failure in tendon transplantation, for failure in arthrodesis, etc., and for failure following anastomosis. The work of Kilvington and other English experimenters shows that nerve anastomoses will regenerate and quite extensively. Dr. Schwab and myself have been working on these problems with the combined point of view of the neurologist and the orthopedic surgeon. We started to alcoholize the nerves in cases of poliomyelitis following the success we had in alcoholizing the nerves supplying muscle groups in spastic paraplegias and spastic quadriplegias. We have had some very successful cases in which there was overaction of the hamstrings, in which the alcoholization of the particular nerves supplying the overacting muscle group caused the overacting muscle group to cease to overact, and gave the weaker antagonistic group in spastic palsy a chance to pick up power.

Where there is sufficient power in a muscle or muscle group in the foot to produce a deformity, such for instance, as the deformity of club-foot, then there are active nervous elements in the leg. The question is to select these nerve elements and make what can be made out of them by nerve anastomosis, leaving the tendons and joints untouched. This should be considered always first as a procedure, because if regeneration is established the result will be better than that obtained by fixing a joint or by tendon or muscle transplantation.

We have done several operations of this nature, one for instance, in two cases of isolated quadriceps paralysis. The branch of the quadriceps was severed from the anterior crural trunk and put under the vessels into the obturator nerve. This has been followed by regeneration in both instances, and the opposing group to this return of power in this weakened quadriceps, is the hamstrings. The sciatic nerve was exposed down the back of the thigh and the branches to the hamstring muscles were injected with alcohol, thereby throwing out the opposing group for a more or less definite period of time.

The relative value of all the procedures properly performed has been clearly demonstrated in Dr. Silver's paper. Dr. Lovett has written a paper recently, in which he showed that failure was due to neglect on the surgeon's part of the after treatment of these cases. The patients are not cured when the operation is done. These are cases on which someone must put time, patience and much physical energy in order to secure the improvement that should be expected.

DR. FRANK R. FRY, St. Louis: We have all been hammering away at various modes of treatment for many years, and, as Dr. Church has intimated, with very little encouragement. In more recent times it seems to me the important function of the neurologist in these cases is to impress on the patient and those who have charge of them the fact that they have a chronic situation on hand for the treatment of which they must stir up as much enthusiasm among themselves as they possibly can in the midst of adverse circumstances. For instance, massage, I believe, is uniformly accepted by neurologists as the only rational routine method. We should tell our patients that massage must be practiced not for a few months but for several years. Many patients cannot afford to have the services of a professional rubber; we must educate somebody in connection with the case to carry on this work effectively.

Some years ago Dr. Hammond, of New York, taking a lot of old cases of poliomyelitis in which muscles showed no reactions whatever to electrical current, was able, continuing the current with persistency, to develop reactions in these muscles. He published this fact, but he never published the sequel of it, which I obtained in personal conversation with him, namely, that afterward these muscles lapsed to their former condition. That is the kind of discouragement to which we have become used. It is on account of that fact that neurologists to-day are more interested in what the orthopedists are doing, than in anything they feel capable of accomplishing themselves. I personally feel no comfort in trying to take care of a poliomyelitis patient without being in contact with a reliable orthopedist all the time.

DR. C. R. WOODSEN, St. Joseph, Mo.: I believe that the lack of success of orthopedic measures is due largely to the fact that too many men undertake to do this work, who are not familiar with the nervous system, especially its anatomy and the function of various nerves. There are few men who do this work well, and there should be a specializing along that line.

There is one thing that every physician who sees a case of poliomyelitis can do and should do, and that is, to make an early diagnosis. A lack of effort to diagnose is responsible in many instances for a failure to diagnose, but the important thing to do is to prevent deformities. It can be diagnosed before paralysis appears. It may not be diagnosed of course, until afterward, as has been stated, but the important thing is to retain a proper temperature and prevent deformity and institute early treatment of massage and electrotherapeutics. It is easy to prevent deformities if the case is taken early. In some cases treatment does not restore function, but the prevention of a deformity makes the cure much more easy.

DR. C. H. HUGHES, St. Louis: Having had a rather extensive experience in the direction of poliomyelitis anterior, as you may probably guess from the color of my hair, I wish to make an addition of something that has not been contributed to this subject.

Two instances are now in my mind of recoveries from poliomyelitis anterior. One child was brought to me in the arms of the nurse, sent to me by a very able physician down there in southern Illinois, where malaria is said by the inhabitants to be so thick that you could cut it with a knife. I noted that there were no cerebral symptoms connected with the case: this absence is to be expected in a typical case of poliomyelitis. There was no delirium; there had been no coma at any time; it was not a case of cerebral apoplexy: both lower limbs were paralyzed, and it occurred to me, being familiar with the practice of medical men in this section of the country and below, that I would add to my treatment a vigorous course of quinin. Quinin and protoiodid of mercury were sufficient to bring about a complete restoration in that case of poliomyelitis anterior within six weeks without deformity. I considered the cure complete in ten weeks and permitted the child to go home. That girl is now a grown woman, free from any evidence of any sort of the after-consequences, contracture deformities, etc., that so often confront us, to our dismay, in the management of poliomyelitis anterior. Unfortunately I have not had the good fortune in

the majority of my cases to see such satisfactory results effected.

In the other case the child was placed by the nurse on the steps on a hot summer day and fell asleep; and when the nurse came to it again the child had no use of its lower limbs, but had not lost consciousness, had no mental impairment, and no evidences of anything else except the involvement of the anterior horns of the spinal cord. That child recovered, and that is all the recoveries out of a good many cases that I might record.

Notwithstanding the microbic invasion in poliomyelitis acuta, we generally believe that its attack is somewhat similar to that of pneumonia. Now the common impression is that the chill permits the microbic invasion, and then we have the work done by the pneumococcus in pneumonia and the infective agent in this essential paralysis of children thus gets in its damaging work.

DR. H. E. ROBERTSON, Minneapolis: In regard to the involvement of the pia mater I am unable to agree with the authorities who urge that such involvement is primary. I have always found the involvement of the cord more marked in any particular region than that of the corresponding pia. The place of infection is the perivascular lymph-channels, extending to the interstitial portions of the gray matter of the cord, and second, to the lymph-channels in the pia mater, and even to the gray and white matter of the posterior columns.

DR. DAVID SILVER, Pittsburg: My paper was intended as a review of the literature of the present-day surgical treatment of this affection. Regarding Dr. Hammond's results, cited by Dr. Fry, one would naturally expect relapse, because, while muscular tissue was present, it was not sufficient to meet the demands of functional use. In such cases some procedure is obviously required to decrease the amount of work demanded of the muscles, as for example, arthrodesis.

An unusual amount of patience is required in dealing with these cases. I mentioned several procedures which seem to me of distinct value and I wish again to emphasize them. My first point is that in a drop-foot, for example, it is obviously of much greater value, early in the treatment, to fix the foot by taking out a skin flap or by making an artificial ligament, which does not interfere with any subsequent operation, than to fix it with a brace, because the brace not only interferes with the function of the part but its daily removal is a disadvantage: the part must be retained constantly in the position of maximum relaxation, if a return of power in the weakened muscles is to be secured. The second point is that in every case deformity must be overcome a long time before any operation for the restoration of function is attempted. Usually when the patient consults the surgeon, some operation like nerve anastomosis or tendon transplantation is at once proposed, instead of preliminary treatment being instituted to determine accurately the degree and the extent of the paralysis and to put the part in the most favorable condition for such operation. If such preliminary treatment is carefully carried out, I am sure our results will be very much more favorable.

BRONCHIAL ASTHMA AS A PHENOMENON OF ANAPHYLAXIS*

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It is now generally accepted that bronchial or idiopathic asthma is due primarily to a stenosis of the bronchioli. It is not necessary to dwell here on the particulars of this disease. For the purpose of this paper, however, the following facts may be mentioned. Asthmatic attacks occur only in individuals who are especially subject to it, that is in asthmatics. Furthermore, onset and disappearance of the attacks bear the

character of capriciousness. Heredity, also, seems to be an influential element in some instances. Finally, there is practically no pathologic anatomy in this disease. On the basis of these facts, bronchial asthma is considered as a functional disease which, according to the prevailing view, means a neurosis; hence also the term nervous asthma. From the symptomatology we shall mention here only the following points: By percussion it can be established that during an attack of asthma the lungs are overdistended. The auscultation reveals that there is a considerable decrease of the respiratory exchange of air despite the greatly increased efforts of the respiratory muscles.

There are two theories regarding the nature of the nervous origin of the bronchostenosis in asthma. One theory assumes that the stenosis is due to a vasomotor disturbance, which brings about a swelling of the mucous membranes or of the submucous tissues of the bronchioli, causing thereby a narrowing of their lumen. The other theory assumes that the stenosis is due to a tonic contraction of the muscle fibers surrounding the finest bronchial tubes. At present, the latter theory is accepted by most of the clinical writers, especially since it was established by the careful physiologic investigations of Einthoven¹ and of Brodie and Dixon,² that by stimulation of the peripheral end of the pneumogastric nerves a stenosis of the bronchi takes place which is due exclusively to a contraction of the muscle fibers and not to the production of circulatory changes of any kind. According to this theory an attack is brought on by a stimulation of the broncho-constrictor nerve fibers which run in the pneumogastric nerves. It is assumed that the stimulation takes place, in some obscure way, mostly in the medulla oblongata; in some cases, however, it may be brought about in a reflex way from some peripheral organ. At any rate, asthma, according to this view, is a nervous affection and has its origin in the central nervous system.

It is my intention to attempt to interpret the asthmatic paroxysm as a phenomenon of anaphylaxis, assuming at the same time that the process is a peripheral one. This attempt is based on some very interesting facts recently discovered by Drs. Auer and Lewis³ in the Department of Physiology and Pharmacology of the Rockefeller Institute. In order to understand clearly the points I wish to bring forward, permit me to make a few elementary remarks on the subject of anaphylaxis or hyper-susceptibility.

ANAPHYLAXIS

Anaphylaxis is in an essential point the reverse of immunity. All know what immunity means. Every physician is familiar with the fact that a patient who has recovered from an infectious disease, typhoid, for instance, is less susceptible to a second infection from the same disease. The same applies to the effects of toxins. The experimental work of the last two decades has furnished ample evidence that the injections into an animal of non-fatal doses of toxins, for instance the toxins of diphtheria or tetanus, make this animal more resistant—it immunizes it—against this very toxin. In other words, the passing through a definite infection or intoxication is the means of a decrease of the susceptibility of that animal to the specific infection or intoxication. There were, however, scattered facts which indicated also that the reverse of immunization may occur; that is, that instead of a decrease of susceptibility, an increase may

* Read at the Annual Meeting of the Association of American Physicians, Washington, D. C., May 4, 1910.

1. Einthoven: Arch. f. d. ges. Physiol. (Pflüger's), 1892, II, 367.
2. Brodie and Dixon: Jour. Physiol., 1903, xxix, 97.
3. Auer and Lewis: Jour. Exper. Med., 1910, xii, 151. See also THE JOURNAL A. M. A., 1909, lii, 458.

occur. For instance, the passing through an attack of erysipelas seems to prepare the individual for recurrent attacks of this disease. The same is perhaps also true of pneumonia. In the extensive work on the immunization against toxins, several investigators recorded observations to the effect that an immunization led up to a hypersusceptibility.⁴ However, about five years ago, striking experiments became known which all at once raised this issue to a problem of considerable importance. Our president told us that the present annual meeting is the twenty-fifth of our Society, and pointed with pride to the good work which the members have contributed to medical science. Permit me therefore the historical remark that the striking and fundamental facts on which the very interesting chapter of anaphylaxis rests were first observed and developed by members of our Association. In the course of his studies of the effects of diphtheria toxin and antitoxin on guinea pigs, Theobald Smith observed (1903) that by repeated injections of toxins, these animals instead of becoming immunized sometimes manifested rather a definite increase of their susceptibility to the poisonous effects of the diphtheria toxin. These observations Dr. Smith communicated orally to Paul Ehrlich during his sojourn in this country. On his return to his Institute in Germany, Ehrlich caused one of his pupils, Otto, to investigate systematically this observation, who, in publishing his results, designated the fact of the hypersusceptibility as Theobald Smith's phenomenon. Simultaneously, and independently of any other observer, the striking phenomenon was observed and extensively investigated by Dr. Rosenau in conjunction with Anderson.⁵

EXPERIMENT

The fundamental experiment which brings out this phenomenon in a striking manner is as follows:

A guinea-pig receives a subcutaneous or intraperitoneal injection, let us say, of a small dose of horse serum. The injection produces apparently no effect; the animal remains perfectly normal. When, however, a few weeks later a second injection of horse serum is given to this animal, let us say one c.c. of the serum, given intravenously, the animal dies within a few minutes with striking manifestations. This is an absolutely reliable experiment which never fails. Now you observe that the result as described here was accomplished not with a bacterial secretion, a diphtheria or tetanus toxin, or an endotoxin of any other bacteria, but simply with normal horse serum, which seems to be innocuous in its first injection. In fact, this hypersusceptibility can be produced with such harmless proteins as egg albumin, milk or some vegetable protein, edestin, for instance.⁶ A striking feature of this phenomenon is that it is strictly specific; if the first injection was made with horse serum, the phenomenon will occur only when horse serum is used in the second injection, or if edestin was used in the first injection, only a second injection of edestin is capable of producing the fatal phenomenon.

Let me now say a word about the origin of the term anaphylaxis. It was created by Richet some eight years ago. In studying the effects of a poison which he isolated from actinia he distinguished two opposite actions one which produces prophylaxis (immunity) and another which produces anaphylaxis (hypersusceptibility). The term anaphylaxis found general acceptance.

Now let us remember first of all that for the production of anaphylaxis two stages, two separate processes are necessary. The first part consists simply in an injection into the animal body of some foreign proteid. It produces practically no visible effect, but it sensitizes the organism; we call it therefore the sensitizing injection. It need not be an intravenous injection; an incorporation of the proteid in any other manner will have the same effect. The quantity of the proteid is also of no special importance; a very minute dose of the proteid sensitizes an animal. The second part consists, as stated before, in a repeated injection of the same proteid; this is the toxic injection. The effect of this injection is, indeed, most striking, especially when it is given intravenously. The quantity is also of some importance; the larger the dose, the more prompt is the effect. The second injection should not be given too soon after the sensitizing injection; the interval between the two injections should be at least twelve or fourteen days.

The sensitizing effect may be transmitted from the mother to the offspring which, however, may gradually dwindle away. The acquired sensitization leaves a long-lasting impression; even after years a second injection is capable of producing a definite toxic effect. The effect, however, is not always fatal and as striking as described above. When the second dose is not sufficiently large, or when administered in a less effective manner, the guinea-pigs may recover from the "anaphylactic shock" (as the violent attack is often designated), or the attack may set in with less violence.

PHENOMENA OF ANAPHYLACTIC SHOCK

We now come to a discussion of the point which interests us here mostly, namely the character of the attack. From the start, all observers agreed that the death of a guinea-pig in an anaphylactic attack is due to respiratory failure. The attack consists in exaggerated respiratory efforts and manifestations of profound dyspnea. Most of the writers assumed that the cause of this fatal respiratory disorder is located within the respiratory center in the medulla oblongata. Gay and Southard,⁷ who have done meritorious work on the problem of anaphylaxis, are emphatic in their claim that the fatal respiratory phenomenon is due to a hyperstimulation of the respiratory center. Although Gay and Southard noticed that the lungs of guinea-pigs dying in anaphylactic shock are "emphysematous" they considered this condition as being only a secondary effect of the violent inspiratory contractions of the diaphragm, the primary cause of the attack being, as stated before, the over-stimulation of the respiratory center.

The recent investigations of Auer and Lewis, however, have in my opinion definitely established the true cause of the anaphylactic shock in guinea-pigs. In the first place, they have established that the lungs, which become greatly distended with the onset of the attack, remain in a distended state even after their complete removal from the thoracic cavity after the death of the animal; in fact, the lungs do not collapse even when cut into pieces. An anatomic study of the lungs demonstrated that the distention is due neither to emphysema nor to pulmonary edema. Furthermore, the typical condition of the lungs remained the same even if the second, toxic injection of the serum was administered while the animal was under the influence of curare (and the life kept up by artificial respiration); that shows that the

4. We may mention here: Behring (1893), Richet (1902), Arthus (1903), Wolf (Elsner), (1904) v. Pirquet and Schick (1905).

5. The publications of Otto as well as those of Rosenau and Anderson appeared in 1906, and I am at present unable to state which one of the publications was ahead of the other. But I can bear witness to the complete independence of the observations of Rosenau and Anderson, because in December, 1905, Dr. Rosenau was kind enough to communicate to me their remarkable experience, and we discussed the possible meaning of the phenomenon.

6. First successfully employed by P. A. Lewis.

7. Gay and Southard: Jour. Med. Research, 1908, xix, 22.

distended state of the lungs cannot be simply a secondary effect of the violent contractions of the diaphragm. The real character of the dyspnea was revealed by the fact that during the anaphylactic attack the lungs could not be further inflated by artificial respiration; that is, air could not pass through the bronchi into the alveoli while the respiratory efforts produced at the same time a strong negative pressure in the pleural cavities. Finally, Auer and Lewis have established that the anaphylactic attack takes place in animals with a destroyed central nervous system, exactly in the same way as in normal animals, which proves that the process is of peripheral origin. In other words, Auer and Lewis have definitely proved that the cause of the acute anaphylactic death of guinea-pigs is a stenosis of the bronchi due to a peripheral process. This process consists, Auer and Lewis believe, in a constriction of the bronchi due to a tonic contraction of their muscle fibers. It is sure that these contractions are not brought about by central impulses. Whether these contractions are brought about by a stimulation of the muscle fibers themselves or of the nerve endings, this question Auer and Lewis have not attempted to decide for the present. They have discovered the important fact that in many cases the anaphylactic attack can be prevented by a previous injection of atropin. This fact would indicate, according to the accepted view, that the nerve endings are responsible for the attack. On the other hand, Auer⁸ recently found that the attack would set in even in animals in which the vagus nerves were cut a long time before the second injection. The nerve-endings therefore must have been degenerated previous to the anaphylactic attack. We may add here that the important results of Auer and Lewis were confirmed by Anderson and Schultz⁹ and by Biedl and Kraus.¹⁰

SIMILARITY TO NERVOUS ASTHMA

The following facts, observed by Auer and Lewis, are of special interest to us here. In an anaphylactic attack the bronchi are constricted: no air can pass into the alveoli, nor can it escape from them; and the lungs are greatly distended and cannot collapse. It was shown that the constriction of the bronchi is of peripheral and not of central origin. Now exactly similar symptoms are met with in so-called nervous asthma. During the attack the bronchi are constricted, air passes through them only with great difficulty. Is asthma a nervous process and of central origin, as is generally assumed, or is it an anaphylactic phenomenon and essentially of peripheral origin? That is, may we not assume that asthmatics are individuals who are sensitized to a definite proteid substance and that the asthmatic attack takes place when the same proteid substance invades the body in the same manner? For one form of asthma this has been established experimentally, and that is for hay fever asthma. As is now well-known, hay-fever is due to the toxalbumins of the pollen of some plants. When such a toxin is injected subcutaneously into a normal individual, it causes no effect whatsoever. If, however, a minute quantity of it is injected into an individual who is subject to hay-fever, in a short time all the symptoms of hay-fever appear, and among them a definite attack of asthma. This can mean only that hay-fever subjects are sensitized to a specific proteid of the pollen of a definite plant, and that whenever the same proteid

invades these individuals in some way or other the result is an anaphylactic attack, which, among other phenomena manifests itself in the form of asthma. May we not explain all other forms of asthma in the same manner?

According to this view, to repeat again, an asthmatic is an individual who is sensitized to a definite substance and an asthmatic attack sets in every time this substance manages in some way to enter into the circulation of that individual. We must bear in mind that even in the crude manner of our experiments a very minute quantity of the specific proteid is sufficient for the sensitization as well as for the intoxication. In the actual processes which take place in Nature the effective doses may be infinitely small, and it may well be possible that the minute quantities contained in the emanations from horses, cats or guinea-pigs are sufficient to act as a toxic dose and call forth the non-fatal stenosis of the bronchi evidently present in an asthmatic attack in the human. Perhaps certain digestion products of the proteins become now and then absorbed into the circulation from the alimentary canal in some cases in an abnormal stage.

Such an absorption may have little or no influence on normal individuals, but will call forth an anaphylactic attack, that is, an attack of asthma, in an individual sensitized to this protein product. We need not attempt to work out the details of our theory. Our knowledge of the anaphylactic process is yet too young and too scanty for such an undertaking; any application in detail will surely soon have to be rearranged. But with our theory in mind, a future study of cases of asthma might bring to light definite causal relations, just as happened in the studies of hay-fever. For the present, the following parallel facts may be recalled to mind. The sensitization to anaphylaxis may be hereditary or acquired; so is the disposition to asthma either hereditary or acquired. Anaphylaxis is specific; animals sensitized to a definite proteid can be intoxicated only by that proteid. The same seems to be true also for asthma. This is certainly true for the hay-fever asthma. Individuals who suffer from hay-fever in the spring due to the grass pollen are not subject to the autumnal attacks which are caused by the ragweed pollen. But the specificity seems to hold good also for other cases of asthma. For instance, individuals who get attacks of asthma in the presence of cats do not get it by the emanations from horses or from guinea-pigs. A most interesting and valuable point is the fact that atropin, which relieves asthma, relieves, as it was discovered by Auer and Lewis, also the anaphylactic attack. On the basis of the identification of the two phenomena there is an encouraging outlook for the therapeutics of anaphylaxis as well as for asthma. But I shall not indulge in a further discussion of the details of our subject.

SUMMARY

It is generally agreed that the so-called nervous asthma is due to a stenosis of the bronchioli. It was discovered that the so-called anaphylactic shock is due also to a stenosis of the fine bronchi. The theory is here offered that asthma is an anaphylactic phenomenon; that is, that asthmatics are individuals who are "sensitized" to a specific substance and the attack of asthma sets in whenever they are "intoxicated" by that substance.

It has been proved that the anaphylactic attack is of peripheral and not of central origin. It is therefore suggested that the so-called nervous asthma is also due to a

8. Auer: Proc. Soc. Exper. Biol. and Med., 1910, vii, No. 4.
9. Anderson and Schultz: Proc. Soc. Exper. Biol. and Med., 1910, vii, 32.
10. Biedl and Kraus: Wien. klin. Wochenschr., 1910, xxiii, 385.

peripheral and not a central cause; in other words, "nervous" asthma is not a neurosis.

On account of the capriciousness of the onset and courses of asthmatic attacks, as well as on account of the absence of pathological-anatomical changes in this affection, asthma was considered a functional disease and hence a neurosis. From our point of view asthma is still a functional disease but not a neurosis. We have therefore a significant instance in which a functional disease need not be of nervous origin.

Rockefeller Institute for Medical Research.

VOMITING OF GALL-STONE

J. M. PFEIFFENBERGER, M.D.

ALTON, ILL.

The following is herewith reported to place on record a case which I believe is rare enough to be of some interest:

History.—Mrs. S., aged 40, was seen on July 3, 1910, at which time she complained of nausea and "feelings of distress" in the epigastric region. There was no rise in pulse-rate or temperature. Palpation over gastric and hepatic region elicited no tenderness. The patient had been constipated for several days and gave a history of three attacks of similar nature while traveling in the west, one on April 7, another April 15 and the third about May 1, the attack on May 1 being diagnosed as appendicitis. She was given one grain of mild mercurous chlorid every hour for three doses, the evening of July 3. Early the next morning, July 4, the nausea became very distressing and the patient vomited about 6 to 8 ounces of mucus and gastric juice, after which she took a glass of champagne to relieve the distress. About twenty minutes after taking the champagne she vomited (in my presence) a drachm or more of what looked to be pure bile and a small dark substance which made an audible click when it struck the side of the vessel. On closer examination of the substance it was found to be a gall-stone of the cholesterol and bilirubin-calcium variety, with two facets on it. Following the expulsion of the stone and bile the patient seemed to obtain immediate relief and did not vomit again. On deep palpation I could now find some tenderness over the gall-bladder area.

Dr. O. H. Elbrecht of St. Louis saw the case in the evening with me.

Operation.—July 6, the gall-bladder was exposed through a right rectus incision and found irregular in shape, of normal size, with walls in a healthy condition and no adhesions present. The appendix was looked at and found to be held down with a few adhesions which were separated and the organ removed by the usual method of crushing and invaginating the stump with purse-string suture. The area around the gall-bladder was walled off with gauze and the organ incised at the fundus, allowing the escape of a small quantity of bile and seven medium-sized stones, ranging in size from a grain of wheat to a hazel-nut, then one large stone the size of a large Brazil-nut was removed with a spoon curette, the gall-bladder thoroughly sponged out and the cystic, common, and hepatic ducts palpated but no stones felt. The packing was next removed and the gall-bladder drained with a rubber tube placed in the fundus and fixed by a purse-string suture to the parietal peritoneum, the wound closed by tier suture, and the patient dressed and placed in bed.

Postoperative History.—The patient was nauseated for some time afterward and next morning vomited a large quantity of bile, and passed a quantity by tube. The tube was removed on the fourth day; the stool was bile-stained on the

seventh day. There was no rise of temperature or pulse following the operation. The patient was removed to her home on twelfth day and her bowels moved of own accord on fourteenth day. The wound was entirely healed on the fifteenth day. A very interesting and extremely satisfactory result to the patient, who had been dependent on cathartics and enemas for the last eighteen years, is that since two weeks following the operation her bowels have been moving daily and sometimes twice daily without assistance.

I am preparing a paper on the records of all cases reported of vomited gall-stones and I should be pleased to hear from physicians who have had such cases to report.

Special Article

EPIDEMIC POLIOMYELITIS.

A DISCUSSION OF THE PREVALENT INFANTILE PARALYSIS

Epidemic poliomyelitis has long been known under the name of infantile paralysis and under this name its symptomatology has been described in the text-books. Small outbreaks have been described, one occurring in the United States as early as 1841, but epidemics were not frequently noticed until about 15 years ago. The prevalence of the disease appears to have been increasing since that time. An extensive outbreak occurred in Sweden in 1905 and two have occurred in Australia, one in 1903 and the other in 1908. An extensive epidemic occurred last year in Prussia, especially in Westphalia. The principal epidemics in this country during the last 3 years have occurred in Boston, New York, Minnesota, Kansas, etc., and the disease has been unusually prevalent during the past summer in many states.

The interest excited by these epidemics has led to a great deal of investigation which has advanced our knowledge of the nature of the disease.

The disease is a general infection, attacking chiefly the nervous system and localizing itself in the anterior horns of the spinal cord.

ETIOLOGY

July, August, September and October are the months in which most cases occur. Both sporadic cases and those in epidemics have been noted to occur after hot dry weather. The disease is more prevalent in cold than in warm countries. Clinical experience has shown that the disease is contagious, though it is perhaps not highly so. The way in which it is communicated is not certainly known. Dust has been suggested as one means of conveying the contagium. In the Massachusetts epidemic out of 150 cases investigated 62, or nearly half, had been swimming or wading in water contaminated by sewage, just before the onset of the disease. The experiments of Flexner give some reason to believe that the virus is contained in the mucous membrane of the pharynx to an unusual degree. On the other hand, careful autopsies have shown that lesions of the tonsils or of the pharyngeal mucosa are not constant.

The nature of the virus is not known. That it is a living organism is rendered probable by the fact that it can be transmitted from man to the ape and from this ape to a second ape, as shown by experiments of Flexner and Lewi-

and Römer. The disease was first communicated to apes by intradural injection of the substance of the spinal cord. Subsequent experiments of Flexner have shown that the same results can be obtained by intraperitoneal and even by subcutaneous injection of the filterable virus. The germ, if such there be, is so small as to pass through a Berkefeld filter. No micro-organism has been discovered that can be regarded as the cause of the disease.

PATHOLOGY

The pathologic changes are thus summed up by Hochhaus: There is a vascular inflammation of the anterior horns (gray matter) throughout the whole axis of the spinal cord; in addition the inflammation often extends to the posterior cornua, the white substance and to the meninges. In many cases the medulla and the pons are affected as also the brain. This appears to be constantly the case in the severe cases.

SYMPTOMATOLOGY AND COURSE

The disease varies as to degree of severity, type and structures most prominently involved, and for convenience in description may be divided into the following forms: The abortive form, those of moderate severity, the acute ascending poliomyelitis of severe type, the bulbar and the encephalic. Abortive cases may not be recognized by one not familiar with the condition even during epidemics. The incubation period is from five to thirty-three days, the average being about ten days in the experimental cases of Flexner and Lewis. Beneke found in some experiments on rabbits that the animals showed no symptoms for from eight to eleven days. The first symptoms usually observed in all forms are connected with the gastro-intestinal tract; in 90 per cent. of cases as found by Krause. In two-thirds of these there was diarrhea and in the remainder constipation. Rarely the disease begins with angina or with inflammation in the respiratory tract. In the mild or abortive cases there may be a moderate degree of fever, sweating, some headache, the patient is restless and complains of neckache and backache, with pains down the legs, and in young infants there may be muscular twitchings and sensitiveness when handled. Leucopenia is an important initial symptom, as noted by E. Müller. In many cases the child cries with the slightest movement. Delirium rarely occurs. The sensorium is usually unaffected. Symptoms occurring during the course of the fever, at first interpreted as weakness, may be the signs of the beginning paralysis, and should be watched for. The child may not be able to sit up or hold up its head. According to some authors, there is no forcible retraction of the head, but a falling backward of the head from paretic relaxation of the muscles. The symptoms subside in a few days and then it may be noted for the first time that the patient is disinclined to use the legs, or complains of muscular weakness and fatigue to a greater extent than would be warranted by the length of the illness, but no actual paralysis develops and recovery is complete in a week or two.

In the moderately severe form the symptoms are similar, but more severe. There may be rigidity of the neck and retraction of the head, the temperature is higher, running up to 101 to 103 F., with vomiting, sweating, prostration, restlessness and severe pains in the back and extremities, and in some cases with inability to empty

the bladder or to control the bowels. In three or four days a flaccid paralysis occurs involving a group of muscles, one extremity, or both, or may involve the trunk or upper extremities. This paralysis reaches its maximum in a few hours, or perhaps in three or four days, and in a week or ten days begins to improve, which improvement continues until only a small amount of paralysis remains, but this is usually permanent. Recovery may, however, be complete even in severe cases during epidemics. The ganglion cells controlling many muscles do not degenerate. These recover in a short time, while the muscles corresponding to permanent lesions in the spinal cord remain permanently paralyzed. This permanent paralysis usually affects the legs; rarely the arms. Paralysis of the thighs is uncommon, and usually only a group of the leg muscles is permanently affected. Anesthesia has been observed.

The acute ascending type is like that last described, but the lower extremities, bladder, rectum, abdomen, diaphragm, back, chest, upper extremities, throat, etc., are involved in succession until the paralysis reaches the medulla when respiratory paralysis and death ensue.

In the bulbar form, aside from the other general symptoms, the paralysis first attacks the bulbar region, causing paralysis of the throat, eyes, face, tongue, with strabismus in various forms, difficulty in deglutition and phonation, choking and other related symptoms. Respiratory paralysis may also occur in this form as in the ascending type. Recovery may be complete or partial.

In the severer forms in which death does not occur there may be a period in which the patient remains in about the same condition and then improvement in the paralysis occurs rapidly to a certain point, and then slowly for a period of about two years, after which any remaining paralysis is permanent.

IMMUNITY

Flexner and Lewis have found in their experiments that one attack probably confers immunity from subsequent attacks. They have also established immunity by repeated injections of the filterable virus in gradually increased quantities.

DIAGNOSIS

The prospect of efficient treatment of this disease depends on early diagnosis. No treatment can accomplish much after paralysis has supervened. It is during the period of fever and initial paralysis that an antitoxin or immune serum if one were available would need to be applied in order to do any good. It is therefore of the utmost importance that the earliest symptoms of illness—especially in children during the prevalence of poliomyelitis—should be closely scrutinized with a view to discovering diagnostic points that may make the early recognition of the disease possible. At present little positive aid can be obtained from our knowledge of the symptomatology. It must be differentiated from cerebrospinal meningitis. In the latter disease the cerebral symptoms are more pronounced, the retraction of the head and stiffness of the spine more characteristic, and there is absence of paralysis. Examination of the cerebrospinal fluid would also help to differentiate the two conditions. The conjunction of diarrhea, fever, and sweating is suggestive and should afford reason for investigating the case carefully. Such a patient, especially a child, should

be visited at frequent intervals and examined for the first symptoms of paralysis. The examination of the blood will show leucopenia. Some observers have found an increase of lymphocytes in the cerebrospinal fluid. The occurrence of the general paralysis manifesting itself in the form of weakness, together with pain in the limbs and tenderness on moving the spine, is confirmatory. The predominance of a flaccid paralysis in one or more groups of muscles in the lower extremity completes the diagnosis.

PROGNOSIS

The mortality has varied considerably: in various epidemics from 5 to 20 per cent., in some cases being as high as 40 per cent. It is usually not very great. Evidence of abortive cases is afforded by the fact that in many instances other members of the family have suffered from diarrhea without the paralytic symptoms (Krause). There are probably also cases in which death occurs, sometimes suddenly, from the general infection without any symptoms of paralysis. Beneke noted such results in two of the rabbits inoculated by him. The possibility of complete recovery from the paralysis is admitted, but Krause met only one such case in the Westphal epidemic. In the Boston epidemic 10 per cent. of 628 patients recovered completely. In a smaller group of 150 patients who were carefully examined 25 or 16.7 per cent. recovered completely (R. W. Lovett). The prospect of improvement in the paralyzed limbs is good, although regeneration of the destroyed ganglion cells is not to be hoped for. The causes of death are the toxemia, cerebral complications, such as meningitis, and respiratory paralysis.

TREATMENT

As no specific is known, treatment must be symptomatic. Treatment suitable to an infection and toxemia should be promptly instituted. The bowels should be emptied by calomel and a saline and by colonic flushing, whether diarrhea or constipation be present. Elimination by the kidneys should be stimulated by a suitable alkaline diuretic, such as liquor potassii citratis. Salicylates may be given both for the relief of the pain and as being antagonistic in a general way to infections. The patient should be confined to bed and kept warm and comfortable. In view of the marked tenderness, Hohmann has recommended the application of a plaster cast. Gowers recommends that the patient be not permitted to lie on the back on account of the danger of increasing the congestion in the spinal cord. If a position on one or the other side is impracticable, pillows against the back will raise the spine from the lowest position and save the inevitable hyperemia from being augmented by the effect of gravitation. Strychnin should not be given until after the first two or three weeks. Electricity should be deferred a little longer. Gentle massage may be commenced sooner by upward rubbing with such pressure as causes no pain. Kneading of the muscles is better avoided. Re-education of the muscles by encouraging the child to use the paralyzed limbs should be begun after the acute symptoms have subsided. In this way other groups of muscles may be made to perform more or less perfectly the functions of those permanently paralyzed.

Therapeutics

CHRONIC ARTHRITIS

Whether one or more joints are in chronic trouble, or whether the disease is more general as in arthritis deformans, or whether the trouble with the joints is due to gout, chronic arthritis is one of the most troublesome, unsatisfactory, and discouraging conditions to treat. Anything that will cause a better understanding of the etiology of the condition will not only lead to its prevention before actual lesions of the joints have occurred, but will often aid in producing a cure or stay of the disease if the etiologic factor can be removed.

Dr. Hermann W. Marshall (*Johns Hopkins Hospital Bulletin*, July 1910) discusses this troublesome subject, and reminds us "that joint symptoms occur in constitutional infections and nervous diseases, and that their causes are manifold, and moreover the various etiologic elements do not act on a simple tissue, but on a complex structure including bone, cartilage, connective tissue, nerves, synovial membranes, blood capillaries, and lymphatics." As a result the bone may atrophy or hypertrophy, cartilage may be destroyed, there may be thickening of the fibrous tissue, there may be localized edemas or actual effusion into the joints, there is always stiffening and pain, and there may be ankylosis.

Marshall emphasizes the importance of the character of the blood, as it by bringing irritants to the joints, becomes an important factor in the cause of joint disturbances. Besides these chemical irritants, disturbances in the nervous system can reflexly affect joints, and the joints may be disturbed by physical conditions, pressure, sprains, etc. In any particular instance any one of these three factors may act in varying degree, and also Marshall believes that one or more joints may have their vital resistance reduced so as to be susceptible to what another joint may withstand.

Irritating substances in the blood that may injure joints are "chemical products of bacterial growth, chemical products derived from the gastro-intestinal tract, metabolic products of organ activities, and drugs such as lead." Bacteria may locally infect a joint and produce substances that are irritant. Ptoains circulating in the blood may irritate joints as seems proved by the fact that eradication of ptoain infection from the gastro-intestinal tract and a modification of the diet to prevent further ptoain poisoning or ptoain production has immediately relieved joint pains. While we cannot exactly define or chemically describe a toxin, Marshall states that these are formed by the action of bacteria on nitrogenous food materials, and certainly it has been shown that the removal of all such toxins from the system has many times entirely removed and prevented joint pains. In other words, there seems to be no question that irritants (whether the actual chemical substance produced by bacteria, or whether toxins from bacterial activity, or ptoains absorbed from the intestines) can cause joint pains often general, perhaps localized in joints that are physically disabled, and have their withstand power temporarily reduced. The removal of such intestinal malproducts cures the joint pains.

Marshall believes that the products absorbed from bacterial action in the colon, and from the stomach and intestines under pathologic conditions without bacteria, are causes of joint irritations. Certainly clinically, as he states, many a chronic arthritis patient gives no antecedent except chronic indigestion. Visceral displace-

ments causing indigestion without any apparent bacterial infection have been accompanied by joint disturbances and the joint disturbances have become better when the displacements were corrected. Marshall states that when chronic indigestion seems to be an etiologic factor in joint inflammations generally the bone hypertrophies, which seems to indicate a different kind of irritant from that produced by bacterial toxins which lead to destructive atrophic bone changes.

Hyperactivities or disturbed activities of the organs or glands of the body seem to frequently be the cause of joint irritations. This is sometimes noted after pregnancy, in thyroid disturbances, and pancreatic disturbances. It is certainly true that the beginning of gouty joints and sometimes of arthritis deformans dates from the cessation of ovarian activity.

When disturbances of the nervous system affect the joints, as Marshall well says, it can hardly be a simple proposition. If an individual nerve to a particular joint or set of joints is in trouble it can readily be understood how tropic changes in the joints take place; or if a particular portion of the spinal cord is affected how the joints that are enervated by that portion may become so disturbed as to show signs of irritation and inflammation. In general nervous conditions, however, the organs concerned in digestion are greatly disturbed, intestinal indigestion occurs and the absorption of irritants may take place, and these irritants may be the cause of joint disturbances in many nervous diseases.

Mechanical injury to the joints whether irritation, pressure, over-work, or insufficient circulation from some old injury, or anything that disturbs the nutrition of a particular joint or set of joints may become causes of chronic arthritis.

A thorough investigation of an individual patient who has chronic arthritis, with all of these etiologic suggestions in mind, will discover the best possible treatment and the treatment that promises most for the individual. It certainly is useless to direct a local treatment or even a general treatment without first endeavoring to remove the etiologic factor, if such a factor can be removed. If the diseased joints incapacitate a patient for work or exercise, compelling him to live a sedentary life, mal-digestions are bound to take place, and irritants in the blood will be ever present, if not actually on the increase, and the arthritis must progress. Prevention, then, of gastro-intestinal indigestion and the regulation of the diet in such a way as to assure the least possible absorption of toxins or chemical irritants is of primary importance. Although not mentioned by Marshall, it seems very necessary to study, by examinations of the feces and examination of the twenty-four hours' urine, the ability of the patient to digest the different kinds of food and properly to excrete the various salts, and to limit his diet to those which he properly cares for and to remove a food or salt, or diminish it at least, that he did not normally digest, metabolize or excrete. The amount of water a patient should drink seems to be another important factor in aiding the cure or prevention of progress of the joint affection. A blood count is also necessary. Many patients are anemic; many not. Many such patients have disturbances of the white blood corpuscles which should be noted. Worry, nervous frets, and all excitement that tends to neurotic conditions should be prevented, if possible. Here is one of the greatest values of temporarily removing a patient who has a number of joints affected, showing that there is a general cause for the trouble, to a private hospital or

sanatorium for treatment. Serious nervous affections give, of course, a serious prognosis to the joints affected.

Various measures for producing local hyperemia are valuable. If the disease is more or less general nothing is any more valuable than body baking, the so-called hot air treatment. It increases elimination through the skin, promotes the circulation of the surface of the body, relieves pain, and increases the activity of the circulation in the joints. It also relieves the congestion of the internal organs and therefore is an aid to digestion. If the general circulation is poor the baking should be done under careful supervision, to promote the circulation, and not to have the baking so frequent or so prolonged as to debilitate the patient. If properly managed this baking is of the greatest aid in helping these patients. If the disease is localized in one or more joints repeated local baking may be valuable, but often does no good, and may do harm. If there is no improvement after a certain length of time certainly the treatment should be discontinued.

The production of localized hyperemia in certain joints by bandaging, the Bier's treatment, may be of value, but often in chronic conditions it is of no value. Active massage and passive movements may be of great value. Various electric stimulations to the spine may be of value in individual patients, but often probably do more good psychically than physically. Electric light bath treatments and various hydrotherapeutic measures all have their value and all do good. Whether a joint should be immobilized or not is a question for careful decision. If there is acute inflammation it should probably be temporarily immobilized. Sometimes such immobilization will almost produce a cure, and again a joint becomes stiff and is really injured. Such fixation treatments, then, should be carefully considered before they are inaugurated.

Medicinal treatment, except such treatment as is aimed to promote digestion, proper bowel activity, proper circulation, and proper character of the blood, is of little value. If there is thought to be hyperacidity of the secretions or at least decreased alkalinity, alkalies may be of value, but certainly alkalies should not be pushed to the point of interfering with stomach digestion. Salicylates are of but little value in chronic joint disturbances. Iodids in large doses will produce waste, and may be what a fat patient needs. Small doses of iodid stimulate the thyroid to extra activity, promote general metabolism, and may be of value in the individual case. Colchicum in chronic arthritis is probably of little value except as it may increase intestinal activity. All of the various lithia salts, and all of the various laxative and alkaline waters have no specific action, but if combined with increased muscular activity, increased activity of the skin, increased drinking of water in proper selected cases, a regulated diet and a regulated life, in other words, proper regime, they may be of apparent benefit. It is the regime, however, and not the particular kind of lithium or other salt that works the cure.

Let it be urged that a physician cannot spend too much time in the study of a patient who shows beginning chronic arthritis, to endeavor to prevent the progress of the disease and to prevent a life of more or less invalidism. No matter how tedious, and no matter how expensive it is for the patient to be scientifically studied in this condition, it will pay him and his physician for the outlay to arrive at the best management of his disease.

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[For other information see second page following reading matter]

SATURDAY, SEPTEMBER 17, 1910

THE CHARACTERISTICS OF IMMUNITY IN SYPHILIS

Before the discovery of the *Spirochaeta pallida* (*Treponema pallidum*) by Schaudinn there exists a reasonable suspicion that the then unknown parasite of syphilis was one which passed through distinct cycles of development within the human host, thus accounting for the differences in the lesions observed in the classical three stages of the disease. This explanation for the variations in the lesions of syphilis collapsed with the earliest investigations made after the causative organism had been identified, for it was at once found that there was no difference in its appearance and characteristics whether it was examined in chancres, secondary eruptions, congenital lesions in deep-seated organs, or even in tertiary lesions, where it can be found sparsely distributed. Later investigations supplemented the evidence of morphologic identity by showing that biologically the organism is the same, since syphilitic material from lesions of any stage when inoculated into susceptible anthropoids gives rise always to the same sort of lesion, the primary chancre. From an extensive study of the historical facts and experimental investigations, with particular reference to the immunologic process of the disease, Levaditi of the Paris Pasteur Institute has developed an interesting and plausible conception of the processes which follow infection with syphilis, and which cause the peculiar development in stages that characterize its course in man.¹

While it is universally recognized that a strong degree of immunity is developed in syphilis, yet it is also recognized that this immunity is not absolutely protective and that it manifests itself in various ways. Persons with a definite history of syphilis may again acquire a primary lesion and develop the usual sequence of manifestations, and an individual may have multiple primary lesions, but neither of these occurrences is common. As a rule the existence of syphilitic lesions, whether active, quiescent or apparently healed, guarantees the individual against a new infection, and numerous actual experiments have established this protection. Now this condition of resistance to infection in syphilis is somewhat

peculiar, in that at the same time the protected individual may be, and usually is, harboring living organisms which may even be actively engaged in causing injury to his tissues. This is quite different from the ordinary conception of immunity, which implies that the immunity is the result of a refractory state incompatible with the life of the infectious agent. As a matter of fact, the immunity in syphilis is really not absolute but relative; during the period of incubation, and during the early stages of the history of the chancre, a second inoculation may result in the formation of more or less typical primary lesions; the later in the disease the less frequently and less typically will successful results be obtained. After the chancre is well developed, and during the secondary stage, inoculation with active virus under the skin may produce atypical lesions, or lesions resembling those of the secondary stage, although to such doses of virus as are commonly received by natural means of infection there will usually be no reaction. In the tertiary stage there is almost absolute insusceptibility to infection by inoculation, either natural or artificial, in spite of the fact that at the same time within the tissues a localization of a very small number of organisms coming from the patient's blood will produce large, rapidly spreading lesions, with great destruction of tissues, the gummas.

These apparently contradictory facts Levaditi explains in the following hypothesis: During the period of incubation, and before the primary sore appears, the parasites invade the body, for during this stage in experimental animals the virus can be found in the internal organs, particularly the spleen. This invasion causes the development of immune bodies, which soon are manifested by a partial refractory condition of the skin to further infection by natural exposure to syphilitic virus; this resistance is slight during the early stages of chancre formation, but is well developed by the time of the onset of secondary lesions, although not usually so complete that it may not be overcome by inoculation with a sufficiently large quantity of active virus. During the secondary stage we find that the lesions are chiefly of an inflammatory character, with evidence of great resistance by the tissues, which suffer comparatively little injury, in spite of the presence in these lesions of very great numbers of parasites; whereas in the tertiary stage, when the resistance to infection coming from without is highly developed, the lesions show great tissue destruction produced by an extremely small number of parasites.

Since the parasite seems to be the same in all conditions and stages of the disease, the differences in the effects produced are to be accounted for by differences in the resistance of the host to the invading organism. Levaditi suggests that the resistance developed during the primary stage may be sufficient to hold the parasites in check for a time, until they acquire a certain degree of immunity of their own to the antibodies of the host; they then enter the blood and set up a generalized

1. Levaditi, C.: De l'immunité acquise dans la syphilis, Ztschr. f. Immunitätsforsch. Referate, 1910, II, 277.

infection, characteristic of the secondary stage. In reaction to the infection of this stage greater quantities of antibodies are formed, which suppress the growth of the parasites to a large degree, although not destroying all of them. In the course of time the tissues themselves, however, may acquire a hypersensitive condition, so that even a few spirochetes may be able to cause extensive local necrosis, characteristic of the gumma of the tertiary stage. It is of course possible for the host to develop sufficiently great amounts of antibodies to destroy all the infecting organisms, thus accounting for those cases in which one or both of the last two stages of the disease are not manifested. Tertiary lesions as a rule, however, develop in spite of a highly developed resistance to the parasites of syphilis, which is shown by the difficulty or impossibility of producing a new infection by inoculation with new virus; presumably, therefore, the lesions of the tertiary stage are produced by organisms which are refractory to the antibodies of the host, but which are growing in tissues that have become hypersensitive or anaphylactic to the syphilitic virus. On this basis the efficiency of iodids in the tertiary stage would be ascribable to their action on the tissues, which they render less sensitive, or antianaphylactic, rather than to an action on the parasite comparable to that of mercury in the earlier stages.

These speculations of Levaditi have much to commend them as worthy of serious consideration, and to those who are familiar with the features of infection and immunity manifested in the trypanosome and spirillary diseases, on which much of Levaditi's reasoning is based, they will seem to be well grounded and far from visionary.

A NATIONAL DEPARTMENT OF HEALTH

Since the introduction in the Senate, by Senator Owen, of the bill providing for the establishment of a federal department of health, there has been much discussion in both the scientific and the secular press regarding the proposed measure. Several congressional committee meetings have been held at which appeared those favoring and those opposing the measure. Both proponents and opponents, however, at the committee meetings and in the public press, have dealt largely in general statements. No definite scheme has been submitted as a basis of discussion or action; and only general—and in the main irrelevant—objections have been advanced. This week we publish an article by Dr. Young, who for twenty years has been connected with one branch of the government health work. In this article the question is presented in its broader aspect. So far as we are aware, this is the first attempt that has been made to bring together and to present in concrete form the various activities, relating directly or indirectly to public health, carried on in the several departments of the government.

A careful reading of the paper reveals two important points. First, while the government is doing a large amount of excellent health work, its efforts are scattered and more or less duplicated, and, in the interest of economy and of far more effective ultimate results, the various enterprises, so far as practicable, should be coordinated and brought under one general head. Second, the problem of unifying all these enterprises and bringing them into one department or bureau is not so complex as some suppose, and yet it is a problem whose solution should not be attempted without careful study of existing conditions in order that reorganization may not result in halting or hindering some of the good work now being done.

As the first definite outline of a national department of health, Dr. Young's article is deserving of careful and critical study. Probably few will agree with him in all his conclusions, but the paper will serve as a basis for that common-sense, dispassionate and logical discussion of the problems involved which is needed if we are to secure satisfactory constructive legislation. The importance of the subject and the necessity of a provision for the health of the public are admitted by all—all, that is, except those having a faddistic or mercenary interest in the perpetuation of existing conditions. The only question on which there is any room for a difference of opinion is: In what way should the government's health activities be organized so as to result in the highest good to all the people?

The organization of a new department of our national government is an administrative problem of great importance, which can scarcely be solved by sweeping general statements. Dr. Young's contribution is of great value, especially in that it offers a tangible basis for discussion and can be taken as a starting-point for actual constructive efforts.

THE PURIFICATION OF WATER BY STORAGE

It has long been known that when cholera vibrios or typhoid bacilli are added to raw river water under laboratory conditions of experiment these pathogenic microbes die off rather rapidly; over 99 per cent. of the two species mentioned are destroyed within the first week. The inference seems justified that the longer a contaminated water can be kept from reaching the consumer the less likely is it to be the bearer of infection. The time element is probably more important than any other in the familiar process of the self-purification of streams, and its effect is particularly marked when water is retained for any considerable period in storage reservoirs.

In some cases the principle of purification by storage has been recognized and taken advantage of by the officials in charge of municipal water-supplies, but, on

the other hand, storage has been looked on often merely as a safeguard against drought and has not been utilized to its full value as a protection against water-borne infection.

This seems, for example, to have been until recently the case in London where, it is stated, the two large Staines reservoirs with a total capacity of 3,338 million gallons had their inlet and outlet pipes in the same towers, thus rendering impossible any proper circulation of the water. The work of Houston,¹ however, has drawn attention to the influence of storage on the character of the London supply, and should go far to make the beneficial effect of water storage more generally appreciated.

Briefly speaking, storage reduces the amount of suspended matter, the amount of "free ammonia" and of "oxygen absorbed" and removes some of the color; the hardness also is usually decreased. The number of bacteria of all sorts is diminished by storage, and this diminution is especially marked in case of the excremental bacteria, including the typical *Bacillus coli*. Indeed, Houston's work demonstrates that storage "reduces the number of typical *B. coli* to a proportionately greater extent than it reduces the number of bacteria of all sorts." As a prefiltration process it lengthens the life of the filter and produces uniformity in the character of the water delivered to the filtration beds.

The important fact is brought out also in the Report of the Metropolitan Water Board that London is not really drinking filtered raw river water, but river water which by storage processes has been bacterially purified to a remarkable extent antecedent to filtration. In spite, therefore, of the somewhat unsavory origin of much of the river water which serves as the source of the London supply, the water actually distributed to the consumers is of a high degree of bacterial purity. It seems very unlikely that any noteworthy portion of the typhoid fever in London at the present time is water-borne. At all events the death-rate from this disease is as low (3 per 100,000 inhabitants in 1909!) as in those cities that are provided with a supply of known and unexceptionable purity.

Curiously enough, some of the English authorities now appear inclined to attribute more importance to storage than to filtration in the purification of polluted river water. It does not seem necessary, however, to place the two processes in antithesis. Sand filtration, even when a raw and rather highly contaminated water is directly applied to the filter bed, has abundantly demonstrated its efficiency as a means of reducing typhoid infection. But it is indeed true that the beneficial effects of storage need to be just as widely known; in many cases this important process of purification can be taken advantage of with safety and economy.

Current Comment

THE DISINFECTION OF THE HANDS OF TYPHOID CARRIERS

The well-known difficulty of checking completely and permanently the excretion of typhoid bacilli from the bodies of "carriers" is leading to a search for other measures likely to avoid or lessen the danger to the community which is involved in the existence of these "walking germ-factories." Obvious measures are the prohibition to them of certain occupations, and instruction in habits of personal cleanliness. The motive for the latter precaution is readily found in the high degree of peril to which the family and immediate associates of the carriers are exposed. Clear and emphatic descriptions of the consequences to family and friends likely to follow from neglect will in many cases lead to willing compliance with instructions. The most effective method of obtaining hand-disinfection is made the subject of a recent study by Gachtgens,² a writer well known for his researches in connection with the intensive campaign against typhoid in the Rhine provinces. In this study, hands soiled with the infectious material have been subjected to various cleansing processes and then carefully tested for the survival of typhoid and colon bacilli. Thorough washing with soap and water, especially when followed by rinsing in fresh water and wiping on a clean individual towel, diminishes enormously the danger of infection and may in some cases lead to entire removal of the intestinal microbes from the infected hands. Since in some cases, however, this procedure does not effect complete removal of the adhering germs, Gachtgens recommends for greater security the use of some disinfectant. In his experiments formaldehyd soap solution, alkaline hypochlorite solution, hydrogen peroxid and even phenol proved unsuitable for the purpose, but good results were obtained with alcohol, especially in the form of eau de cologne and the ordinary cooking alcohol (*Brennspiritus*).

FISH AS FOOD

The enhanced cost of living in all civilized countries has directed attention to the less expensive forms of food. It has been said that the production of wheat is not keeping pace with the increase in population and that some more productive substitute must be found for it. Meat, likewise, for reasons not to be discussed here, is becoming relatively scarcer, and consequently so much more expensive as to portend at no distant time its compulsory partial abandonment as an article of diet by the poorer portion of the population. A more extensive use of fish has been suggested as one way out of the difficulty. As reported in our London Letter, at a recent meeting of the Sanitary Inspectors' Association in London, Sir James Crichton-Browne remarked on the value of fish as food, especially for the poor; from a physiologic standpoint it ranks second only to meat, containing somewhat less of protein but often more fat, while being far less expensive. Salmon is found the equal of lean

1. Report of the Metropolitan Water Board, 1905-1910.

2. Arch. f. Hyg., 1910, 73, p. 233.

meat in food value, and a pound and a half of cod is equal in nutritive value to a pound of lean beef, while the cost is very much less. Improved transportation facilities and methods of distribution make fish available as food to a much wider extent than formerly. At present, on account of fashion, prejudice, taste, etc., many of the coarser kinds of fish are tabooed, although of equal or greater nutritive value than those that are more popular. With present measures of conservation of fish and fisheries extended, along with the conservation of our other natural resources, and with proper encouragement in the use of this form of nitrogenous food, there would be an enormous development in the fishing industry and an accompanying economic saving to the people, while still maintaining the public health by a high plane of living in the presence of a waning meat supply.

TWO REMEDIES FOR RACE SUICIDE

"The best crop is the baby crop," said Mr. Roosevelt at Ames, Iowa, recently. True, but what shall it profit a nation if it produce ever so large a crop of babies but fail to keep them alive until they grow to years of maturity and usefulness? That nation is the strongest which has the largest number of mature, healthy and capable men and women. Mr. Roosevelt has done great service in decrying race suicide and urging a larger birth-rate. There are, however, two ways in which a nation can annihilate itself. One is by a diminishing birth-rate and the other is by an increasing death-rate among infants and young adults. The child which dies before it reaches maturity is a dead loss to the community. If Mr. Roosevelt will take up, with his accustomed vigor, the conservation of existing lives, in conjunction with his campaign for an increase in the number of new lives, as a combined remedy for race suicide, he will aid a growing and inevitable reform and will vastly increase the obligations of the country to him for his services.

ITALIAN IMMIGRANTS AND TUBERCULOSIS

It is reported that tuberculosis is increasing in Italy, and the reason given is that many of the immigrants returning from the United States are consumptive. How much increase there is, and how much truth there is in the statement that the increase is due to the immigrants from America, we do not know. It would not be at all strange, however, if there were some foundation of facts to warrant the statement. Most of the immigrants from southern Italy have been country laborers at home. When they reach this country, they swarm to the slums of our large cities, and naturally become easy prey to tuberculosis and to other diseases favored by the new conditions and modes of life. In their native country they lived chiefly in the open air under a mild and equable climate, where they were less subject to direct infection, to artificial conditions of life, and to violent extremes of temperature; their new life in all its phases is conducive to the changing of healthy men into consumptives. It would be better for these

Italian immigrants, as well as for us, if they would go into the agricultural districts, where they are really more needed and where they would be better off physically and in every other way. That the Italian immigrant, established in a suitable rural environment, and in a climate not too unlike that of his native country, is capable of becoming, with little assistance, a self-sustaining and useful citizen, is shown by the success of the Italian colony of St. Helena in North Carolina.

UNHYGIENIC CIGAR-MAKING

A matter worth the attention of health authorities is afforded by the custom among cigar-makers of biting off the tobacco at the end with their teeth and finishing the cigar by plastering down the outside leaves with saliva. We cannot say how extensive this custom is, but from our acquaintance with cigar-makers it appears to be not uncommon. The excuse given for this insanitary method is that, while the managers do not actually demand it, it is practically impossible to finish a cigar to meet the demands of the foremen without resorting to it. The practice if generally known ought to diminish the sale of cigars on esthetic considerations alone, to say nothing of the very obvious danger of the transmission of disease—tuberculosis, for example, which is quite prevalent among cigar-makers. The practice is injurious not only to the customer, but to the workman as well. The frequent occurrence of functional stomach disease, among them, chiefly hyperchlorhydria, is at least greatly favored by this practice.

EPIDEMIC POLIOMYELITIS—INFANTILE PARALYSIS

We have received many requests for information on various points regarding poliomyelitis, showing the desire for more information than is to be found in the majority of text-books. These requests have come from all parts of the country, emphasizing what is known to be a fact—that this disease is epidemic in many localities. On account of this desire for information, we have prepared, and publish this week, a short article on the subject. In addition there is in this issue an abstract of a paper by Robertson and Chesley on the pathology and bacteriology, and an article by Silver on the surgical treatment, together with the discussion which took place thereon in the Section on Nervous and Mental Diseases at the St. Louis session of the Association. From the history of the past few years it would seem that the disease is increasing in frequency; it is certainly a subject that needs the most careful thought on the part of the hygienist and of the family physician. The public should be taught that the disease is a contagious one. While this contagiousness may not be great—probably one-quarter as great as that of scarlet fever—the danger is sufficient to justify the isolation of actual and suspected cases. The disease should be reported, and health officers should endeavor to make clear the dangers which are sufficient to warrant moderate quarantine. Probably the infectious period does not extend much beyond the acute period. The observations of

Flexner that the mucosa of the pharynx contains an unusual proportion of the virus would indicate that the secretions of the throat may form one of the sources of the infectious material. Further investigation should be directed to the possibility of conveyance of the virus by the feces, urine and perspiration. Physicians should impress on their clientele the importance of prompt medical supervision in cases of acute intestinal disturbances in children in localities in which the epidemic is prevailing. Careful records of such cases should be kept, so that if poliomyelitis develops, the preliminary symptoms could be carefully reviewed. It is by such careful observation of the preliminary symptoms by a large number of observers that we may hope to learn more of the initial symptoms than is now known; this will assist in the early diagnosis of the disease. Next week we shall publish a paper from Dr. Flexner, in which he reviews the experimental work on the disease and what it has revealed.

Medical News

CALIFORNIA

Personal.—Dr. A. Miles Taylor, San Francisco, chief surgeon of the Northwestern Pacific Railroad, gave a dinner August 27 to the surgeons of the road who had been in attendance at the meeting of the Pacific Railway Surgeons' Association.—Dr. Charles W. Decker, Palo Alto, is said to be seriously ill with rheumatism in San Francisco.—Dr. Louis P. Howe, San Francisco, has been appointed local surgeon of the Western Pacific Railroad for San Francisco and vicinity.

Stanford Adds to Medical School.—A number of additions are being made to the medical school at Stanford University. Last year one wing of the museum building was set aside for an anatomy building, and this year two additional wings are being used, one to be devoted to bacteriology under the charge of Dr. Hans Zinsser, a newly appointed member of the faculty, and the other to pharmacology under the charge of another new member of the faculty, Dr. Albert C. Crawford.

Items About Hospitals.—A new hospital is to be erected on the east side of Stockton by the San Joaquin Hospital Association, to cost about \$75,000. The hospital will occupy a site of eight or nine acres, and it is said subscriptions amounting to \$50,000 have already been secured.—A new hospital is soon to be opened at Visalia in the former home of Dr. Neame. It has been purchased and remodeled at a cost of about \$30,000.—Articles incorporating the Oakland Maternity Hospital, with a capital stock of \$15,000, have been filed with the county clerk of Tulare county.—The work of construction on the Kings County Hospital, Hanford, was started August 1.—Dr. Albert J. Elliott has formed a company with a capital stock of \$50,000 to build and conduct a hospital for helpless invalids, under the name of the San Diego General Hospital Company.—The Pacific Lumber Hospital, Scotia, was incorporated August 20.—The King's Daughters of Oakland are making earnest efforts to secure the \$42,000 required to build the new building of the California King's Daughters' Home for Incurables.

COLORADO

Personal.—Dr. Henry W. Rover, Denver, has returned after six months' travel in Europe.—Dr. and Mrs. Horace G. Wetherill, Denver, left September 3 to attend the International Congress of Obstetrics and Gynecology in St. Petersburg.—Dr. Thomas Damhey has resigned as resident physician at the Denver County Hospital.—Dr. Robert S. Allen, physician of Denver County, is recovering from appendicitis for which he was operated on August 23 at St. Luke's Hospital.

GEORGIA

District Society Meeting.—The sixth semi-annual meeting of the Fourth District Medical Society will be held in Pine- dale, September 20, under the presidency of Dr. T. Neal Kitchens, Columbus. The program shows several interesting titles, such as "Christian Science, the Religio-Medical Masquerade," "Why a Physician Should Identify Himself with the Medical Society," "Professional Courtesy," and "What a General Practitioner Ought to Be."

The La Grange Sanatorium.—The legislature of Georgia has appropriated \$30,000 for completing the buildings of the La Grange Sanatorium, and \$20,000 for maintenance of the institution for 1911. At the meeting of the executive committee of the trustees, held in Atlanta August 27, plans were perfected for completing the buildings and preparing for patients. They hope to have the institution ready to receive patients January 1, and expect to be able to accommodate 100.

ILLINOIS

Patten Helps Hospital.—George W. Patten, Evanston, has donated \$500,000 to the Evanston Hospital Association. The gift creates the "Agnes and Louisa Patten Fund" and is to make up a part of the endowment fund of the institution, only the income of which can be used.

Personal.—Dr. and Mrs. A. D. Bridgman, Decatur, celebrated their golden wedding anniversary August 31.—Dr. Herbert C. Jones, Decatur, has returned from Europe.—Dr. Porter W. Hopkins, Cullom, has sailed for England.—Dr. Hiram T. Hardy, Kaneville, who was operated on for the removal of gall-stones August 27, is reported to be doing well.

The New Cook County Hospital.—A plaster cast model of the new Cook County Hospital, for which \$3,000,000 has been appropriated, shows the twelve proposed new structures, six medical buildings, two surgical buildings, one administration building, a detention building, a pathologic building, and a morgue. Among the features of the plans submitted by the committee are roof gardens on the ward buildings and outdoor camps for tuberculosis patients.

Chicago

Personal.—Dr. and Mrs. Arthur Dean Bevan have returned from Europe.—Dr. John Edwin Rhodes has returned from a month's outing in British Columbia.—Dr. and Mrs. David Fiske have returned from Europe.

Increases Requirements.—Northwestern University announces that the requirements for admission to its medical school hereafter will be two years in college. Under present conditions students registering for the medical department are required to show only one year of college work. The new plan is expected to go into effect next year.

Increased Death Rate.—The report of the Department of Health for the first eight months of 1910 shows 22,808 deaths as compared with 20,822 in the first eight months of 1909, an increase for the year 1910 of 1986 or 6 per cent., the respective annual death rates per 1,000 being 15 and 14.1. The chief increases noted were pneumonia from 3,372 to 4,133, an increase of 761, and diarrheal diseases of infants, from 1,576 to 2,265, an increase of 389.—During the week ended September 9, 27 new cases of diphtheria were received at the Isolation hospital and 100 cases were reported.

Ground Broken for Jewish Hospital.—Orthodox Jews raised a sum estimated at \$10,000, September 11, at the groundbreaking ceremony for the establishment of the Maimonides Kosher Hospital, at South California and Ogden avenues. The chief privileges sold were turning of the first clod of earth, placing the name on the golden scroll, and burning the mortgage. The building is to be six stories high, will cost about \$175,000, and will accommodate 175 patients, 75 of whom will be free patients. The first wing of the hospital is expected to be completed in less than a year.

IOWA

Hospital News.—The Sisters of St. Francis of the Home for the Aged, Dubuque, are having constructed a new chapel and hospital addition which will be completed in about two months. The hospital will be for the use of sick sisters of the order and for those advanced in years and unable to work.—The lease of the LeMars Hospital having expired, the hospital has been closed.

Personal.—Dr. George Donohoe, assistant physician at the State Hospital, Independence, has been appointed superintendent of the State Hospital for Inebriates, Knoxville, vice Dr.

Herbert S. Miner, resigned.—Dr. John A. White, Olin, who was operated on at a sanitarium at Anamosa, August 18, for gall-stones, is reported to be doing well.—Dr. Henry G. Langworthy is building a private infirmary at Dubuque.

KENTUCKY

Personal.—Dr. Ernest B. Bradley, Lexington, city bacteriologist, has been appointed health officer of Fayette County, vice Dr. William J. Foley, deceased.—Dr. Porter Prather, Lexington, has been elected a representative of the fiscal court of Fayette county.—Dr. John B. House, Scottsville, is reported to be critically ill.

Will Label Adulterations.—As a result of the prosecutions of the local ice cream dealers charged with alleged violations of the pure food law a compromise has been effected between R. M. Allen, chief of the State Pure Food Department, and the attorneys for the ice cream dealers by which the dealers agree to label all of their products which contain gelatin, coloring matter, etc.

Convicted of Manslaughter.—In the case of the state against Dr. Fred D. Marcum, Louisa, charged with killing John Whittaker, the jury is said to have brought in a verdict of manslaughter and fixed the punishment at seven years' imprisonment in the penitentiary. The killing occurred on a train two years ago, when Dr. Marcum was marshal of Louisa, and was requested by the conductor to arrest Whittaker and three companions for alleged disorderly conduct. They resisted arrest and in the fight which followed, Whittaker was fatally shot. At the first trial the jury disagreed.

Asks Modification of Ruling.—The Shelby County Dairymen's Association has passed resolutions asking the State Board of Health to modify its recent ruling which requires a dairyman in whose barn cows affected with tuberculosis have been found to have it disinfected by an inspector selected by the State Board of Health and paid for by the dairymen at the rate of \$10.00 per day for the time so employed. The dairymen claim that they are willing to do all the necessary disinfecting, but protest against the employment of the State Board of Health inspectors as an unnecessary expense. They contend that the work can be done just as thoroughly and at much less cost by the county boards of health. Their resolutions state that they are willing to have their barns disinfected according to the rules laid down by the State Board of Health, by and under the direction of the county board.

Water Supply and Typhoid.—An interesting report has been published by the superintendent of the Louisville Water Works which shows the percentage, for the past four years, of deaths from typhoid fever in the city. The filter plant of the Louisville Water Works was put in operation in August, 1909. The deaths from typhoid fever in 1906 were 137, for 1907, 168, for 1908, 109, and for 1909, 96, the average death rate for the four years being 129. For the year ended August 1, 1910, in which the filter was in operation the total number of deaths from typhoid fever was 73. It is estimated that the mains of the water works system were fairly well cleaned by November, 1909, and that only filtered water circulated through them. The total number of deaths from November 1, 1909, to August 1, 1910, was 38. Comparing these figures with previous years shows a reduction of 60 per cent. in the number of deaths from typhoid fever over the average of the preceding years.

Proposed New City Hospital.—The Hospital Commission of Louisville has submitted a report to the mayor in regard to their plans for the proposed new million-dollar hospital for the city. It recommends the present site of the hospital for the new building because of the central location and easy access, and condemns the present hospital as being far below a modern public institution. With an estimated population of 240,000 the commission recommends a building of not less than 350 beds. The present location comprises about 6 acres. The new building is to be provided with well equipped laboratories; of fire-proof construction; roofs arranged for out-door air and sunlight for convalescents and the building to be a modification of the condensed and pavilion plans. A special department is to be provided for insane patients pending their commitment to asylums. Ample accommodations for the out-patient department with baths and lockers is planned. A mortuary chapel and pathologic building are also arranged. A separate power house and nurses' home will be provided for in the plans. Ample arrangements will be made for the housing and care of patients at present in the hospital before the building is demolished.

MARYLAND

Personal.—Dr. Lewis Mines Allen, associate professor of obstetrics in the University of Maryland, has resigned to engage in general practice in Winchester, Va.—Dr. Francis E. Harrington has been appointed secretary of the board of health of Cumberland.

Better Medical Practice Act Wanted.—The *Bulletin of the Medical and Chirurgical Faculty of Maryland* discusses the evils of the medical practice act in Maryland, and starts an agitation for "a new model practice law the central plank of which should be the single-board idea" . . . "After the brilliant series of successes achieved by the faculty during the last session of the legislature, there can be little doubt that the lawmakers who will assemble at Annapolis in 1912 will enact into law any essentially good medical practice act which has the support of a united medical profession."

Baltimore

The Floating Hospital for Sick Babies.—Dr. P. Martin Bruns has arranged to deliver a series of illustrated lectures on the need of a floating hospital for sick babies. His idea is to have one or two barges for this purpose towed by tugs, and estimates the initial expense at \$20,000 and the annual expense at \$20,000.

Personal.—Dr. James Bordley has returned from a thousand-mile automobile trip through the middle states.—Dr. John T. Powers has resigned from the staff of the Bayview Hospital.—Dr. G. Milton Linthicum, who has been ill with typhoid fever, has had a relapse and returned from Atlantic City to the Maryland General Hospital, September 5.

MASSACHUSETTS

New Ruling on Liquor Law.—In the District Court of Middleboro, August 20, Judge Allan gave a new interpretation of the liquor law of the state, when he decided that a Middleboro druggist who sold liquor on a prescription from a Bridgewater physician had violated the law, and that the Bridgewater physician could not be held to be practicing in Middleboro unless he had an office in the latter town.

Personal.—Dr. Charles H. Fessenden, Newton Center, has been elected director for the New England Division of the North American Esperanto Association.—Dr. Thomas F. Harrington, Boston, director of school hygiene, has returned from Europe.—Dr. John T. Cahill has been elected mayor of Lawrence.—Dr. G. S. Dodds of the biologic laboratory, Woods Hole, has been appointed a member of the faculty of the Medical Department of St. Louis University.—Dr. Francis H. Slack, director of the bacteriologic laboratory of the Boston Health Department, has resigned to accept an appointment as instructor of bacteriology of the Kansas State College, Manhattan.—Dr. Winfred O. Wilder has been appointed medical inspector of schools of Pittsfield.

MICHIGAN

Personal.—Dr. Herbert W. Yemans, Detroit, has been elected vice-president of the North American Esperanto Association.—Dr. R. Grace Hendrick, Jackson, is going to Europe.

Work of County Antituberculosis Society.—The Houghton County Antituberculosis Society, which is making a request for funds for the furtherance of its work, states that the visiting nurse employed now has 82 patients under her care. Of these 25 are sleeping in the open air under the advice and direction of the society. Since the establishment of the service in February, 20 patients have died; 5 families have been moved to more sanitary homes, and 12 families are receiving daily from one to two quarts of milk provided by the society or by the Associated Charities of Calumet.

NEW JERSEY

Personal.—Dr. and Mrs. Walter Reynolds, Atlantic City, sailed for Europe September 10.—Dr. M. Jones Luffbary, Glassboro is reported to be seriously ill with tuberculosis.—Dr. M. A. Davis, Vineland, was operated on in Cooper Hospital, Camden, September 9, for appendicitis.

Money for New Children's Seashore Home.—Mr. Max Bamberger, Philadelphia, who died at Kissengen, Germany, August 5, left a bequest of \$40,000, "to erect and maintain at Atlantic City, or at some point in the vicinity thereof, a home similar to the Children's Seashore Home, for the accommodation and treatment of invalid Jewish women and children, to be known as the Max and Sarah Bamberger Seashore

Home." It is the desire of the testator that children of Philadelphia be given the preference.

NEW YORK

Personal.—Dr. E. S. McClellan of Saranac Lake, president of the local Board of Health, was struck by a train and severely injured. There is slight hope of his recovery.—Dr. John H. Martin has been elected president and Dr. John C. S. Lappeus, secretary of the newly organized Mutual Protective Association of Doctors of the City of Binghamton.

New Tuberculosis Hospitals.—An institution for the treatment of tuberculosis has been completed and was to be opened in East Bloomfield, Ontario county, September 15. This sanitarium was built at a cost of \$15,000.—The Board of Supervisors of Canandaigua on September 3 voted \$3,000 for the finishing and equipment of the new tuberculosis hospital, and \$1,200 for maintenance of the present institution for October, November and December.

New York City

Personal.—Dr. Mariano Scimeca has recovered his son who was kidnaped June 21.—Dr. Aaron B. Cohen, who severed his connection with the Eastern District Hospital, Brooklyn, September 1, was presented with a silver loving-cup and a set of surgical instruments at a dinner given in his honor August 31.

Clinic for Italian Consumptives.—The Board of Health maintains a clinic for Italian consumptives at 339 East 109th Street. Although this clinic has been in existence for three years, the Italian public has not been made aware of the fact to any extent, and a request has been made that the existence of this institution should be more widely published.

Plan for Better Health Work.—Dr. Lederle has asked the Board of Estimate and Apportionment for a sum which is \$1,328,855 in excess of the allowance for this year. This request has brought to light the fact that there are in this city fewer inspectors than there were ten years ago and that there exist three times the number of contagious diseases. The largest increase asked for is \$486,056, in the division of hospitals, while the division of child hygiene has asked for an increase of \$320,545. This increase is asked so that every school in the city, including kindergartens, parochial schools, industrial schools and the school of correction may all be brought under the supervision of the health board. It is also planned to open winter headquarters corresponding to the recreation piers and summer vacation schools, where mothers will be taught the year round to care for their babies.

Buffalo

Memorial to Sanitarian.—It is proposed to name the new hospital for contagious diseases after the late Dr. Ernest Wende, as a memorial of his services as a sanitarian and health officer.

Addition to Medical Building.—A new addition to the medical building of the University of Buffalo Medical Department is being constructed and will cost, when completed, about \$20,000. The first floor of this addition will be occupied by the chemical laboratory and the second floor will be given over to rooms for research. Larger quarters in the old building will also be provided for the department of pathology.

OHIO

New Location for College.—Following the adoption of a resolution of the new Cincinnati Hospital Commission, declaring its intention of appropriating the property between Eden Avenue and Vine Street, it was announced, September 1, that the commission, after acquiring the property, would donate a hilltop site for the new buildings for the Ohio-Miami Medical School.

Personal.—Dr. Martin H. Fischer has been appointed professor of physiology, Dr. H. Knower, of Johns Hopkins Medical School, professor of practical anatomy, and Dr. Julius H. Eichberg, professor of pharmacology in the Medical Department of the University of Cincinnati.—Dr. James E. Torrence, Hamilton, has returned after two months in St. Ignace, Mich., greatly improved in health.

Addition to College.—The Starling-Ohio Medical College is erecting an addition to the college building, to be used for laboratories at a cost of about \$10,000. Mr. Roy Graham Hoskins, Ph.D., formerly teaching fellow in physiology at Harvard Medical School, has been secured as professor of physiology and will devote all of his time to teaching. He will be assisted by Dr. Clayton C. McPeck.

PENNSYLVANIA

Personal.—Dr. John W. Luther, chief surgeon of the Palmetton Hospital, Mauch Chunk, was operated on in the University Hospital for appendicitis, September 8.—Dr. and Mrs. Wm. J. Hickson, Pittsburg, are going to Europe.—Dr. Allan W. Urmson, New Castle, has been appointed squadron surgeon with the rank of captain in the Pennsylvania National Guard.—Dr. Francis N. Baker, of Media, sailed September 3 for an extended trip through Europe.

Philadelphia

Another Public Bath House.—A permit has been granted for the erection of a public bath house for the city of Philadelphia at the corner of Montrose and Darien Streets. The building will measure 34x95 feet and will cost \$15,000.

Soothing Syrup Maker Held.—Mrs. M. M. Harvey, maker of "Mother's Comfort," for whom a warrant was sworn out several weeks ago, was finally arrested and given a hearing before Magistrate Beaton on September 6. She was held in \$500 bail for court.

Vaccination Rule Changed.—Under revision of the compulsory vaccination law, children who have been vaccinated within five years may be admitted to the public schools. Heretofore a certificate of vaccination was required every three years. This change was made after a careful investigation and on an authoritative statement that the period of five years was sufficient.

Personal.—Dr. Charles F. Judson sailed for Europe September 10.—Dr. H. G. Wetherill, Denver, who sailed for Europe September 10 to attend the Gynecologic Congress, in St. Petersburg, was given a dinner at the University Club, September 6, by Dr. Montgomery.—Dr. Sidney Stephenson, of England, who is to make an address before the American Academy of Ophthalmology and Otolaryngology in Cincinnati, has been a guest of Dr. Wendell Reber.

Facts Brought Out by Milk Inquiry.—At the milk inquiry held in the mayor's office on September 3, Dr. Neff showed that 89.2 per cent. of the milk coming to Philadelphia is over 55 degrees on the platform and 98.2 per cent. is over 50 degrees. Mr. Boyd of the Pennsylvania Railroad reported that refrigerator cars and the refrigeration of the milk in transit would cost a mill a quart, or less. Farmers testified that refrigerating milk had saved its cost for them by preventing milk from souring.

Health Report.—There has been an increase of 77 in the number of cases of typhoid fever reported to the health bureau in the seven days ending September 10. Ten deaths were reported as compared with 4 for the preceding week. These cases are not limited to the city proper as 29 cases have been reported from the York Road, Main Line and Lansdowne suburbs. There is a decrease in the number of cases of whooping cough, 16 being reported this week as compared with 27 last. There were also 11 cases of infantile paralysis reported, an increase of 4.

New Playground for City's Poor.—Plans for the transformation of Starr Garden Park into a model recreation center have been made. A building will be erected 44x144 feet. This will contain shower baths for both sexes, gymnasium, club, class, reading and game rooms and also administrative and teachers' quarters. The building will be of colonial architecture, of Flemish bond brick with limestone trimmings and the floors will be of cement and the building fireproof throughout. The structure will be erected on a plot of ground 400 feet long, at a cost of \$40,000. Improvements to the grounds, including the establishment of track, a wading pool, tennis courts and every facility for play and recreation will cost \$15,000.

Arrests in Pure Food Crusade.—Eleven ice cream manufacturers were arrested and arraigned before Magistrate Beaton, September 9. They were charged with adulterating their products and ten of the eleven pleaded guilty and paid fines of \$25 and costs each. Samples of their products examined by Professor LaWall, chemist for the department, and Dr. Randall Rosenberger, of Jefferson Hospital, were found to contain amyl acetate, ethyl acetate, butyric acid and furniture glue. The last was used instead of gelatin and on analysis was found to contain sulphurous acid or sulphur dioxide, and a bacteriologic examination showed each cubic centimeter of the glue contained 350,000 colonies of bacteria.—On September 9, Judge McPherson granted an order in the United States District Court directing the destruction of 822 cans of tomatoes, 9 barrels of catsup and 114 packages of ice cream recently seized by federal pure food authorities.

GENERAL NEWS

American Physicians in Mexico to Meet.—The International Medical Association of Mexico, an organization of American physicians residing and practicing in the republic, will be held in Juarez or El Paso the first week in November, under the presidency of Dr. C. E. Husk, Santa Barbara, Chihuahua.

Health Association Election.—At the thirty-eighth annual meeting of the American Public Health Association, held in Milwaukee, September 6 to 9, the following officers were elected: President, Dr. Robert M. Simpson, Winnipeg, Man.; vice-presidents, Drs. Fernando Lopez, Mexico City, Mexico; John Anderson, Washington, D. C., and Gerhard A. Bading, Milwaukee; secretary, Dr. William C. Woodward, Washington, D. C., and treasurer, T. H. Wine, New Haven, Conn.

Missouri Valley Physicians Elect.—At the annual meeting of the Missouri Valley Medical Association held in Council Bluffs, Iowa, September 1 and 2, Dr. Donald Macrae, Council Bluffs, was elected president; Dr. John M. Bell, St. Joseph, Mo., first vice-president; Dr. John M. Banister, Omaha, second vice-president; and Drs. Charles Wood Fessett, St. Joseph, Mo., and Thomas B. Lacey, Council Bluffs, were reelected secretary and treasurer respectively. The next semi-annual meeting will be held in St. Joseph, Mo., March 23.

The Cumberland Valley Meeting.—The eighth annual meeting of the Cumberland Valley Medical Association was held at Blue Mountain House, September 1. The following officers were elected: President, Dr. John B. McCreary, Shippensburg, Pa.; vice-president for Washington county, Md., Dr. C. J. Wingard, Funkstown; for Franklin county, Pa., Dr. John C. Gilland, Greencastle; for Cumberland county, Pa., Dr. Harry A. Spangler, Carlisle; secretary, Dr. John J. Coffman, Scotland, Pa. (reelected); assistant secretaries, Drs. John R. Laughlin, Hagerstown, Md., E. Roberts Plank, Carlisle, Pa., and Henry C. Devilbiss, Chambersburg, Pa., and treasurer, Dr. John J. Koser, Shippensburg, Pa.

Health of the Canal Zone.—The report of the Department of Sanitation of the Isthmian Canal Commission for July shows a death rate of 11.80 per 1,000 per annum, which is a little larger than that of July, 1909, but much smaller than that of the previous four years. There were 12 deaths of white employees, an annual rate per 1,000 of 10.37, while of the colored employees, 39 died, equivalent to an annual mortality of 12.32 per 1,000. Malaria caused 11 deaths; violence, 11; lobar pneumonia, 8; tuberculosis, 5; dysentery, 3; typhoid fever and hemoglobinuric fever, each 1, and other diseases, 11. No case of yellow fever, smallpox, or plague was brought to or originated on the isthmus during the month. As prophylactics 43,159 gallons of crude oil, 9,890 gallons of larvicide, 11.25 pounds of arsenic, 32 pounds of pyrethrum, 541 pounds of sulphate of copper, and 216 pounds of phenol were expended by the department during July.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 3, 1910.

Irish Vital Statistics

The official figures for 1909 which have just been issued, show that the population of Ireland is still decreasing, the loss by emigration more than wiping out the excess of births over deaths. In 1908 there was a slight gain of population (1853), the first for more than half a century. In 1909 the figures were as follows: Births, 102,759; deaths, 74,973; emigration, 28,676; decrease of population, 890. It is satisfactory that the deaths from tuberculosis continue to decrease; they numbered 10,594, which are 699 less than in 1908, in which year there was a decrease of 386. This result is attributed to the work of the Women's National Health Association, which has been described in previous letters.

Killed by Tattooing

An inquest has been held on a soldier, aged 21, who died from tuberculous meningitis, the result of tattooing on the right arm, which was followed by a tuberculous scar. The medical evidence was to the effect that tuberculosis might have been inoculated in consequence of the tattooist using a needle with which he had previously tattooed a person suffering from the disease, without proper disinfection of the needle, or that the tattooist might have been consumptive and put the needle in his mouth during the operation. Such a result from tattooing must be extremely rare. A few cases have been observed in this country in which local tuberculosis in the form of lupus has followed tattooing.

Outbreak of Cerebrospinal Meningitis

An outbreak of cerebrospinal meningitis has occurred at certain villages in Leicestershire. In all, 35 cases have so far been observed in an area of 50 square miles, the patients being mostly children between the ages of 2 and 11 years; 4 deaths are reported. As a precautionary measure, the schools have been closed. Three years ago a similar outbreak occurred in the neighboring town of Nottingham.

The Value of Fish as a Food

At the annual meeting of the Sanitary Inspectors' Association held at the Fishmongers' Hall, the president, Sir James Crichton Browne, delivered an address on "Food and Fish Supply" in which he emphasized the value of fish as a food, especially to the poor. Away from our coast towns fish hitherto has been regarded too much as an accessory, and too little as a staple article of diet. Many artisans and people of the middle class might with economic advantage raise their expenditure on fish. They fail to realize the comparative food value of the cheaper, or as they are unfortunately called, the poorer kinds of fish. From a physiologic standpoint fish is the next best thing to meat; 1½ pounds of cod are equal in food value to 1 pound of beef and cost not half the former. If a general call for fish would arise a vast development of the fishing industry would result and good digestible food would be made accessible to the poorest. This might prove a useful auxiliary in the campaign against tuberculosis. We have, as it were, lived on the wild life of the ocean, as our forefathers did on the wild life of the forest. But on the sea, as on the land, we must exchange the chase in a large measure for the ranch and the fold. We should have marine stock farms bordering all our coasts and be able to pride ourselves on our prize turbot and pedigreed cod.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Sept. 2, 1910.

The Campaign Against Alcoholism in the Army

Alcoholism and criminality due thereto, which are in general increasing among the civil population, are, on the contrary, diminishing in most of the European armies. This is notably so in France, where a series of official measures promulgated from 1892 to 1909 tends toward the prophylaxis of alcoholism in the army. All official distribution of brandy or rum has been suppressed in time of peace, and on campaign the distribution of a ration of 0.0625 liter of brandy per man per day is permitted only exceptionally and under rare circumstances, prescribed by the regulation. It is, moreover, absolutely forbidden to sell any brandy or alcoholic distilled liquor in the canteens or on the fields of maneuver. Fermented drinks, however, are still in general use. The moderate use of wine, beer or cider, according to the region, is even recommended and regulated as a hygienic measure and a national custom by the ministerial circulars. Although, thanks to these measures, the French soldier never indulges in alcohol in barracks, unfortunately alcohol still continues to permeate the army. The cause of the evil is outside of the barracks, in those "blind pigs," so numerous near the barracks and camps, where the soldier obtains alcoholic drinks, and contracts syphilis and gonorrhea. For a few years, official instruction in regard to the distribution of alcohol has been given to commissioned and non-commissioned officers and soldiers through lectures, pictures, etc., posted in the messes and dining-rooms. But this is not always sufficient to protect the soldier against the attraction of the saloon. The Red Cross, therefore, has begun to organize "soldiers' firesides" or clubhouses—places where the soldier is, so to speak, at home, where he may deposit his personal belongings, find paper and ink for correspondence, books, games and no alcohol. The military administration has authorized such establishments on condition that they shall be free from religious and political influences.

The Medical Studies of Rabelais

The important place held by the medical sciences in the work of Rabelais is well known. "Gargantua and Pantagruel" abounds in anatomic descriptions and dissertations on pathologic and therapeutic matters. What was the source of the medical knowledge of the great sixteenth-century writer? In a recent thesis for the doctorat *ès lettres* devoted to the work of Rabelais and defended before the Paris college of letters, M. Jean Plattard devoted a whole chapter to the medical

studies of Rabelais and to the place of the medical sciences in his work. M. Plattard showed that the medical bent of Rabelais was due to the fact that at the beginning of the sixteenth century theoretical medicine was entirely founded on treatises of the Greeks and Latins. Whoever knew Greek well could give an authoritative opinion on the interpretation of Galen and Hippocrates. The most technical works were studied by the philologists or "humanists," who had a better knowledge of ancient languages than practicing physicians had. Medicine was founded on "philosophy," in the large sense assigned to the word at that time. Rabelais came to study medicine through the example of his masters and through the natural operation of his humanistic curiosity. He brought to it an enthusiasm of his own and the extraordinary learning thus acquired was put to use in his writings.

New Press for Books for the Blind

M. E. Vaughan, director of the Hospice national des Quinze-Vingts, a hospital for the blind, has invented a little press which permits a 10-year-old child to print in the Braille alphabet without even knowing that alphabet. The operator touches ordinary characters; the machine automatically prints Braille characters. The number of books for the blind and especially for blind children is far too small; therefore this press is capable of rendering valuable service to libraries for the blind.

Employment of Dogs to Seek the Wounded

Lately, during the course of instruction of the sanitary service at Paris, some interesting experiments were made in regard to the finding of the wounded by dogs. The wounded were hidden among high bushes, behind bundles of hay, etc. Dogs brought to the field by the Société nationale du chien sanitaire found the wounded with surprising certainty and rapidity. The dogs worked even better and more quickly by night than by day. When a well-trained dog has gone over a field, even a difficult one, by night or by day, he leaves no wounded person overlooked, which is a point of the greatest importance.

The Renovation of Old Corks

About ten years ago the council of hygiene of the department of the Seine attempted to forbid all employment of old corks, even when cleaned, for bottles or containers of liquids to be taken internally. There exists, however, a trade in the renovation of corks, and the protests of the merchants affected compelled the council of hygiene to modify the order so as merely to impose on the renovators certain conditions, such as the boiling of the corks for a quarter of an hour in 2 per cent. sodium carbonate, followed by immersion for some hours in 1 per cent. sulphuric acid. These precautions appeared, however, insufficient and on the report of M. Guignard, director of the superior school of pharmacy at Paris, and member of the Académie de Médecine, the following rules for the sale of renovated corks have just been adopted: Corks gathered from the streets, from the Seine, from gutters, etc., must not be sold until they have been submitted to the action of live steam under a pressure of at least two atmospheres, the time of sterilization being not less than twenty minutes. Sterilized corks may be decolorized, provided the chemical used for whitening them shall be completely eliminated. Corks so treated may be put on sale only as "renovated sterilized corks."

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 2, 1910.

Death of Professor Henoch

A few weeks after the celebration of his ninetieth birthday the senior of pediatrics, Professor Henoch of Dresden, died. Senile weakness which compelled him even on his birthday to limit the reception of delegates as much as possible was increased by the excitement inseparable from the celebration, and in a short time led to fatal results. Henoch was not only one of the founders of modern pediatrics but a distinguished clinician and physician, a remarkable teacher and a striking personality. His academic activity began as assistant to his uncle, the renowned neurologist, Professor Romberg of Berlin. At this time he published his first notable work "Clinical Results from the University Polyclinic" (*Klinische Ergebnisse aus der Poliklinik der Universität*). As privat-docent (after 1859), he published the "Clinic of Abdominal Diseases" (*Die Klinik der Unterleibs-Krankheiten*) which in spite of the fact that it embraces three volumes has

appeared in three editions. His most noted work is "Lectures on Children's Diseases" which has appeared in a large number of editions and has been translated into many languages. He resigned his direction of the Berlin Children's Clinic in 1893. It distressed him not a little that he could not succeed in getting his extraordinary professorship converted into a regular one, and this dissatisfaction was greatly increased by the fact that what was refused him was assured to his successor, Professor Heubner, on his nomination. There can be little doubt that the Israelitish faith of Henoch was a marked factor in causing the refusal of his request.

Death of Professor von Recklinghausen

On the same day as Henoch, namely, August 26, the distinguished professor of pathology of Strasburg, von Recklinghausen died at the age of 76. He was the earliest assistant of Rudolf Virchow in Berlin, was then appointed as regular professor at Königsberg and six months later went from there to Würzburg. From here he was transferred in 1872 to the newly founded university of Strasburg. The most important of his investigations are the discovery of the wandering connective tissue cells and the establishment of the functions of lymph vessels. Of his monographs his "Handbook of General Pathology, Circulation and Nutrition" is worthy of special mention.

The Cholera

As was to be expected the cholera has also reached us. August 26 a man and wife in our neighboring city, Spandau, sickened of cholera and the woman died the next day. The source of this infection has not yet been determined. Other cases have not yet occurred; the suspicion of cholera in several cases of vomiting and diarrhea was not sustained. August 27 the department of education in conjunction with representatives of the imperial and Prussian provincial authorities adopted further measures for the prevention of an invasion of cholera. In view of the increasing spread of cholera in Russia, the passengers coming by vessels and rafts from Russia have not only been inspected by physicians but their excretions have been bacteriologically examined for the presence of cholera. In this way it was possible to arrest three persons on the Vistula river who seemed perfectly healthy but nevertheless harbored cholera germs in their intestinal contents that might easily cause contamination of a stream by their excretions. These persons were immediately removed and placed under observation. For more careful supervision of commerce along this river as it emerges from Russia into German territory, the establishment of a supervising station at Thorn has been ordered in addition to those already established at Schillno, Schulitz and Einlage. The Russian raftsmen discharged at Thorn are returned by the railroad to Alexandrowo just over the border in Russia. Necessary measures have also been taken against the danger of an invasion of cholera from Italy or Austria. As was to be assumed, the cholera was imported to Italy from the Black Sea. In Russia up to August 19, about 115,000 were attacked, of whom 50,000 died. According to the statement of a Russian journal, thousands of localities are affected. As usual the people oppose the orders of the physicians and the authorities and recognize only brandy as the single remedy for cholera.

Personal

Professor Gaffky, director of the Berlin institute for infectious diseases, has been appointed a regular honorary professor. —Professor Payr, of Greifswald, has declined the call to Zurich as successor to Krönlein. —Professor Perthes, of Leipzig, has been appointed successor to Professor von Bruns, of Tübingen. —Professor Schwartz, the distinguished otologist of Halle, died August 22, at the age of 72. He has been director of the ear clinic in that place since 1884. The most important of his numerous works are "Pathologic Anatomy of the Ear," in the unfinished "Handbook of Pathologic Anatomy" by Klebs, the "Text-book of Surgical Diseases of the Ear," the fiftieth number of "Deutsche Chirurgie" and the "Handbook of Ear Diseases." For a long time he was editor of the *Archiv für Ohrenheilkunde*.

Disbursements for Wage-Earners' Insurance

In 1909 the German Empire, according to the recently published report, expended \$12,500,000 (51,500,000 marks) for disability and old age insurance, \$250,000 (1,000,000 marks) more than in the previous year.

Quackery in Prussia

According to a report published by the department of education, the number of quacks inscribed in the lists of the official physicians in the year 1908 was 7,549. The number has constantly risen in recent years. The proportion of quacks to the number of physicians and dentists in the same year was 36.29 per cent., while in the previous year it was 32.72. In spite of the care of the officials to enlighten the public and in spite of the judicial punishment of quacks for fraud and physical injury, even with fatal results, the activity of the quacks is scarcely diminished. For this reason the government is contemplating again the introduction into the Reichstag of a bill for a German law against quackery. Meanwhile it is being discussed by the upper house.

Nursing Premiums

Especially good results are reported from a district of Württemberg from the introduction of nursing premiums. In that district the infant mortality in the country is very remarkable; in one community in late years on the average about 30 per cent. of the children died in the first year of life. After a philanthropic society offered a daily premium of from 25 to 50 pfennigs (6 to 12 cents) for all needy mothers who nurse their children after the first six weeks, more than two-thirds of the children were nursed during the first 3 months, and only 3 died, while of the rest who were artificially fed during the same time, 26 died.

Instruction in Biology in the Higher Schools

As a result of repeated efforts by a committee appointed at the German Naturforscher annual meeting, biologic instruction was introduced a few years ago into the higher schools, gymnasia, etc. Especially exercises in natural science have been more and more introduced and have given good results. The Prussian minister of education has for that reason made an announcement in which he holds it very desirable to continue these exercises because great value must be attributed to practical methods of instruction for stimulating observation and independent thought as well as for a recognition of the peculiar importance and limited applicability of scientific methods of work. The instruction consists of laboratory exercises in chemistry, instruction in natural history, observation in the school garden, terrariums and aquariums, experiments in plant physiology and exercises in simple macroscopic and microscopic preparations. Schools which are unable to provide for such exercises from their own means are assured aid from the department.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, August 29, 1910.

Sporadic Cholera in Vienna

As pointed out in the last Vienna letter, the spread of cholera toward central Europe has been energetically combated. Only two cases have appeared in this city: one patient died, the other survived. Isolation and disinfection, promptly applied, proved efficient, and these two cases remain as yet the only ones reported. Wide publicity has been given to the fact that the disease has found its way into the heart of the empire. But the Board of Public Health thought it wisest to let the people know the actual conditions, so as to justify the very strict measures and restrictions of commerce which modern hygiene and prophylaxis require. In Hungary, too, sporadic cases have been reported, but here also, the authorities have succeeded so far in stamping out any extension of the infection.

University Students in Austria

Statistical data are now available about the students inscribed at the Austrian universities during the summer term, 1910. Altogether there are eight universities in this country, with a little less than 25,000 students, or an increase of 8 per cent. over the figures of 1909. Ninety-two per cent. were men, 8 per cent. women. The medical students numbered 4,098, an increase of 14 per cent. when compared with last year's figures; while nearly 11,000, or 47 per cent. of all, studied jurisprudence, the increase in the latter group being only 8 per cent. The medical course was taken up by only 16 per cent. of the total. This is explained by the necessity of producing a diploma of jurisprudence for appointment in the civil service. Two hundred and twenty-one women, constituting 5 per cent. of the total number of medical students, took up medicine. As the number of female students was

altogether 1,950, this means that over 11 per cent. of all women studying at the universities want to become doctors of medicine. There is a decrease, both relative and absolute, of the number of female medical students, and an increase of male medical students. The reasons are as yet obscure, for the expectations and openings for female practitioners are rather more numerous and better than before. More puzzling still is the increase in numbers of men taking up medicine. In spite of the warnings to the graduates of colleges and gymnasiums, the admonitions of medical associations, the explanations published often in the dailies as to the hardships and difficulties of a general practitioner, the output of doctors is still increasing. In Vienna alone, last year, there were 1,813 students in hospitals, laboratories and clinics, while the remaining seven universities each had between 300 and 500 medical students to provide for. The teaching is uniform all over the empire as far as possible. Therefore, there is no distinction whatever made between diplomas gained at any of our seats of learning. On the contrary, students are encouraged to frequent as many universities as possible, preferably those of their own language. The age at entrance to university has been fixed at 18 years, but there were seventy-two persons younger than that, while there is no upper age limit. The final medical examinations, however, must be passed within seven years after the first examination to be regarded as valid. The oldest medical students were a man of 64, a retired judge, and a man of 60, who thus prepares himself for his arduous career as a missionary.

The attempt has been made to obtain reliable figures showing how many students were non-consumers of alcohol, and also as regards the general health. In Vienna it was found that not only pulmonary troubles, but also genital diseases, especially gonorrhea, were not infrequent. Exact figures will be forthcoming shortly.

Discontinuation of Weak Diphtheria Antitoxin

The results obtained in treatment of diphtheria with antitoxin are still not recognized uniformly, but it is the opinion of the majority of doctors that only strong doses are really useful. Therefore, the ministry of the interior has ordered the serotherapeutic institute in Vienna (the only authorized serum factory here) to discontinue the production of serum containing less than 1,000 units. This has been received with great satisfaction by practitioners.

The Health of Austria

Every three months a report is issued by the board of health on the health conditions in the empire. Thus for the spring of 1910, it appears that we have had exceptionally favorable conditions. With the exception of diphtheria (with 11 per cent. mortality) and typhoid (7 per cent. mortality) all infectious diseases have diminished in severity and frequency. Especially measles, cerebrospinal meningitis, scarlet fever and poliomyelitis have gone down; smallpox was reported only in ten cases altogether. Anthrax (eleven cases with three deaths) appeared sporadically. In every instance the infection was traced to occupation with hides and hair. Altogether there is constant decline in morbidity since the spring of 1909, in spite of the very changeable weather prevailing in Central Europe.

Miscellany

Parasitic Culture.—That the general culture ideal that certain courses of physical or mental discipline will give a fund of physical or mental energy potentially available for all the demands of subsequent life, may be a mistaken one, is a proposition advanced by George E. Dawson, Ph.D. (*Pop. Sc. Monthly*, September, 1910). The term "general culture" as applied to the organic life is probably a misnomer. The culture we get from gymnastic training and from the athletic field is really special in character and is applicable mainly or solely to the types of physical activity that constitute the training, and unless organs continue to perform the functions for which they were trained they become useless and a detriment to life. They become parasitic. The same proposition holds true with regard to the brain and the intellect, and applies to the unused organs of the mind that have been trained through stunts in mathematics and the classical languages, though the evidence may seem less tangible and

conclusive. Functionless physical structures derived through artificial exercises of any kind thus fall under the general biologic law of atrophy with all its attendant consequences of waste and disease. The only really economical form of physical culture, biologically speaking, is the culture derived through performing activities associated with the natural, fundamental and long-established functions of life. These are, in general, the spontaneous play-activities of childhood and the productive work-activities of manhood, each performed under normal conditions of stimulus and environment. Dawson quotes Payot, who says that the qualities of vital resistance are in no way dependent on muscular strength. A man may be an athlete in a circus and yet have very poor health, while a man who lives in his study may have an iron constitution with mediocre muscular power. Applying this to mental culture, Dawson lays down the proposition that the intellectual culture derived through standardized branches of education, as mathematics and Latin, for example, instead of having a general mental economy for those who study them, in reality becomes parasitic in the nervous and mental life, and thus a cause of wasted energy and possibly of disease. This has been proved by the test of exact experiments by psychologists, and neurology supplies additional indirect evidence. The study of the development of the cortical neurones and association fibers makes it probable that every mental process modifies these nervous elements. Thus the study of mathematics means, on the neurologic side, the building up of neurons that constitute a mathematical nervous mechanism, and the study of Latin or Greek means the building up of nervous structures specifically adapted for those languages, and those nervous organs when unused become parasitic on the nervous vitality, just as the unused muscles of the athlete become parasitic on the general organic vitality. Dawson therefore summarizes his conclusions as follows: 1. It is a law of the biologic world that unused organs become parasitic and tend toward disease. 2. Physical culture which leads to the hypertrophy of special muscles entails a drain on general vitality. 3. Experimental psychology shows that culture of particular intellectual organs and functions cannot be transferred to other organs and functions, except where there are elements in common. The histology and pathology of the nervous system confirm these conclusions. 4. Intellectual culture, not being transferable, must become parasitic and a cause of mental disorganization when it fails of application in the form or channel in which it is acquired. Illustrations are found in the overrefinements of culture in academic communities, in the nervous instability frequently encountered among educated men and women, and in the religious and social vagaries and perversions that crop out in the older and more highly cultivated centers of population. 5. This artificial culture is likely to develop a cultured proletariat, ill-balanced and inefficient as individuals, and a source of danger in our civilization.

Pharmacologic Fetishisms; Another Challenge to the Iconoclast.—The *Journal-Record of Medicine* (Atlanta) protests in its August number as follows: Barton (THE JOURNAL A. M. A., July 23, 1910) makes an attack on a number of well-known drugs, such as calomel, aconite, ammonium chlorid, sweet spirits of niter, veratrum viride, etc. The matter seems to have been considered exclusively from the standpoint of animal experimentation or at least one would judge so from the nihilistic views expressed. So at variance are Barton's ideas with those of thousands of practitioners who are daily using these remedies, that a protest hardly seems necessary. Whether calomel acts as a cholagogue or as an intestinal antiseptic matters not at all to the patient with intestinal auto-intoxication or the so-called biliousness. Incontestable facts have proved calomel to be the best remedy to make the patient well under such circumstances, so why "split hairs" and bewilder the physician who already has few enough of drugs with physiologic effects that may be relied on? Have we not all seen the diuretic effect of sweet spirits of niter? Are there sufficient millions of animals to prove it has no such action in human beings who are being treated with it? Spartein is maligned as being a worthless cardiac stimulant, but not a word said of its value as a renal stimu-

lant; given hypodermically in 1 to 2 grain doses, the writer knows of no more dependable drug when suppression of the urine is feared—especially if it be given early, for instance, twelve hours before an operation where suppression is a danger. It is not to fight the individual battles of these separate drugs that this editorial is written, but rather is it intended to condemn the indiscriminate nihilism underlying the above article. For the sake of hyper-scientific accuracy, Barton marshals before us an array of petty points of weakness of our most valuable drugs, and thus he weakens our faith in our best and most reliable friends and makes us all the easier prey to the alleged virtues of many worthless proprietary preparations so scientifically (?) heralded before us. If we are not to use these drugs which are condemned, in part if not totally, then what should we use in their stead? Can Barton provide for us more reliable drugs than those he declares so worthless?

The Etiology and Biology of Tumors.—The present communication is the last of a series of ten articles dealing with the etiology and biology of tumors of different types. In it E. Saul (*Centralbl. f. Bakteriologie, Parasitenk. u. Infektionskr., Orig.*, 1909, lii, 235) gives a summary of the principal results obtained from a long series of experiments and observations. He finds that in fibromas, cystomas, carcinomas and sarcomas, a special class of parasitic organisms exist. These same organisms may occur extracellularly, either as ameboid or encysted forms, or intracellularly, when they appear as granules or vacuoles. The ameboid and encysted forms are destroyed by fixation and imbedding. Protozoa, says Saul, which give rise to chronic infections, may, under the influence of the living organism, acquire such developmental forms that it is impossible to demonstrate them within the tissues. There are parasitic protozoa, which are infectious in the ameboid stage only, which infiltrate embryonic cells only and which appear as granules or vacuoles in the cells thus infiltrated. By inoculating the ordinary experimental animals with a certain type of cancer parasite, Saul asserts that it is possible to bring about in these animals acute fatal intoxication, granulation tumors, interstitial lymphatic and connective-tissue proliferation in the kidney and the lung (which present the typical picture of chronic interstitial nephritis and fibrous peribronchitis) and cachexia which takes the form of extreme emaciation, ending with death. As in the case of tuberculosis, carcinoma shows a tendency to follow certain chosen paths. Regarding metastases, it is believed that carcinoma fluid is avirulent in the blood-stream, while sarcoma fluid is avirulent in the lymph-stream. From subcutaneous implantation of parts of *Cysticercus fasciolaris* either acute fatal intoxication resulted in the experimental animals or neoplasms developed, which were on the boundary zone of fibroma, sarcoma and granulation tumors.

The Rôle of Streptococci in Scarlet-Fever Infections.—F. Schleissner finds (*Folia Serologica*, 1909, iii, 221) that the blood of scarlet-fever patients always contains antibodies for streptococci. By the method of complement-fixation he attempted to determine whatever etiologic significance streptococci possess in scarlet-fever infections. Various strains of streptococci from the blood of scarlet-fever patients were cultivated and emulsions of these strains were used, according to the method of Bordet-Gengou, with a series of scarlet-fever cases for the fixation of the complement. Two sets of controls were also employed; on the one hand, serum from various classes of diseases which were not in any way connected with streptococcus infection, and on the other hand, streptococcus strains from erysipelas, sepsis puerperalis and panophthalmia. In the majority of cases of scarlet fever (2 to 5 weeks), the serum gave a positive reaction with scarlet fever streptococcus cultures. With streptococci from erysipelas the reaction was always negative, while with other streptococci there was usually a retarding of hemolysis. From his experiments Schleissner concludes that the constant occurrence of antibodies in the blood of scarlet-fever patients indicates that streptococci stand in some biological relationship to the disease processes in scarlet fever. This relationship, however, is at present, so obscure that it furnishes no certain proof that streptococci have a definite etiologic significance in the disease.

Deaths

James Nevins Hyde, M.D. University of Pennsylvania, Philadelphia, 1869; a member of the American Medical Association; twice president of the Chicago Dermatological Association; second president of the American Dermatological Association; and an honorary, active or corresponding member of the leading dermatologic associations of Europe; assistant surgeon in the Navy for two years during the Civil War and for three years thereafter; for thirty-one years professor of skin, venereal and genito-urinary diseases in Rush Medical College and secretary of the council administration and faculty of the institution; professorial lecturer on dermatology at the University of Chicago since 1902; a notable contributor to the literature of dermatology; and the author of a standard text-book which is already in its eighth edition; dermatologist to the Presbyterian, Augustana and Michael Reese hospitals, and the Chicago Orphan Asylum; a member of the Mayflower Society, the Society of Colonial Wars, and the Sons of the American Revolution; one of the most prominent specialists on skin and venereal diseases of America; died suddenly September 6, at his summer home, Prout's Neck, Maine, aged 70.

Dr. Hyde was one of the best known of American medical men. Not only was he highly regarded by his coworkers in his chosen field of professional work on account of that work, but because of his interest in medical affairs and the medical profession generally. All who knew him loved him for his liberality and for his kindness toward all who approached him, young men especially.

William Bailey Sanford, M.D. University of Nashville, Tenn., 1880; of Memphis; a member of the Tennessee State Medical Association; for ten years health officer of Alcorn county, Miss.; surgeon to the Memphis and Charleston Railroad; vice-president of the Mississippi Medical Association, and surgeon and chief of the North Mississippi Medical and Surgical Infirmary; professor of medical economics and life insurance in the College of Physicians and Surgeons, Memphis; died in Colorado Springs, September 2, from erysipelas, aged 59.

David D. Bramble, M.D. Medical College of Ohio, Cincinnati, 1862; a member of the Ohio State Medical Association and Cincinnati Academy of Medicine; for many years professor of surgery and dean of the Cincinnati College of Medicine and Surgery; health officer of the city in 1883 and 1884; died at his home in Avondale, September 2, from nephritis, aged 70.

Frank Fleury, (years of practice, Ill., 1887); of Springfield; from 1881 to 1885 secretary of the State Board of Pharmacy; secretary of the Illinois State Pharmaceutical Association in 1880; died at the home of his daughter in Springfield, August 29, from uremia, aged 68.

Emily Blackwell, M.D. Western Reserve University, Cleveland, 1854; of Montclair, N. J.; who with her sister, the late Dr. Elizabeth Blackwell, founded the New York Infirmary for Women and Children, the first hospital for women in America; died at her summer home in York Cliffs, Maine, September 8, aged 84.

Otto Clarence Baird, M.D. University of Iowa, Iowa City, 1910; of Lockridge, Iowa; while attempting to board a moving train at that place, August 19, was thrown under the wheels and had both legs cut off just above the ankle, and died in the Burlington (Iowa) Hospital, August 21, aged 24.



JAMES NEVINS HYDE. 1840-1910

Parley Howard Eaton, M.D. Howard University, Washington, D. C., 1881; chief of the Division of Issue, Treasury Department, Washington, D. C.; died in Georgetown University Hospital, Washington, February 12, thirty-six hours after an operation for ulcer of the stomach, aged 67.

Joseph Theodore Green, M.D. Kentucky School of Medicine, Louisville, 1893; a member of the American Medical Association; local pension examining surgeon and surgeon of the Illinois Central Railway; died in St. Anthony's Hospital, Louisville, August 30, from pneumonia, aged 43.

Alfred Hamilton Iddings, M.D. Bellevue Medical College, 1866; for several terms health officer of Dayton, Ohio, and for two terms a member of the board of education; local United States pension examiner; died at his home August 20, from chronic interstitial nephritis, aged 70.

Harry Vroom Day, M.D. New York University, New York City, 1877; a member of the American Medical Association; president of the Borough council of Butler, N. J., and vice-president of the First National Bank; died at his home in Butler, August 30, from cancer, aged 58.

George F. Perry, M.D. Washington University, St. Louis, 1875; of Ochiltree; a member of the State Medical Association of Texas; in 1890, representative in the state legislature; died in St. Francis Hospital, Colorado Springs, August 30, from uremia, aged 63.

Ernest Douglas Powell, M.D. Vanderbilt University, Nashville, 1900; one of the inspectors of public schools of Memphis, Tenn.; died in his office from the effects of a gunshot wound of the head believed to have been self-inflicted while despondent, aged 36.

Edmund Livingstone Moodie, M.D. Baltimore Medical College, 1902; of Chatham, Ohio; a member of the American Medical Association; died in St. Louis, July 8, from sepsis, following an operation for hemorrhoids, aged 36.

William J. W. Cornwell, M.D. Medical College of the State of South Carolina, Charleston, 1866; a member of the South Carolina Medical Association, and a Confederate veteran; died at his home in Cornwell, July 16, from gastritis, aged 69.

T. Frank Keys, M.D. University of Pennsylvania, Philadelphia, 1883; died at his home in Chicago, September 6, from inanition following operations necessitated by pyloric stenosis of long standing, aged 50.

Chancellor Yager, M.D. Kentucky School of Medicine, 1877; a member of the Kentucky State Medical Association; died at his home in Shelbyville, September 4, from typhoid fever, aged 53.

George Barstow Richmond, M.D. New York University, New York City, 1879; formerly of Salinas, Cal.; died at his home in Westboro, Mass., July 31, from pulmonary hemorrhage, aged 52.

Harold Lee Barnum, M.D. Hahnemann Medical College of Philadelphia, 1902; city physician of Sedalia, Mo., for two years; died at his home, August 30, from cerebral hemorrhage, aged 35.

Umberto Buffo, M.D. University of Turin, Italy, 1904; a member of the American Medical Association; of McAlester, Okla.; died in New York City, August 31, from nephritis, aged 31.

Tobie Lucien Lougarre, M.D. Tulane University, New Orleans, 1876; a member of the Louisiana State Medical Society; died at his home in Moreauville, August 29, aged 72.

Charles T. Buckholtz, M.D. Homeopathic Medical College of Missouri, St. Louis, 1874; died at his home near Murphysboro, Ill., August 30, from angina pectoris, aged 69.

Harry Hunter Fox, M.D. Southern Homeopathic Medical College, Baltimore, 1904; died at his home in Baltimore, August 29, from nervous breakdown, aged 30.

John Allan Batton, M.D. Jefferson Medical College, 1882; a member of the American Medical Association; died at his home in Uniontown, Pa., March 14, aged 53.

Samuel C. Johnson, M.D. Jefferson Medical College, 1879; of Sharon, Pa., died from angina pectoris while sitting at the bedside of a patient, August 28, aged 57.

John Wilson, M.R.C.S. England, 1858; of Detroit; died at the home of his son in St. Joseph, Mich., August 19, from myocarditis, aged 71.

Harrison McFadden, M.D. Medical College of Ohio, Cincinnati, 1862; died at his home in Magnetic Springs, Ohio, August 31, aged 70.

Jane Howarth Bowker, M.D. Tufts Medical College, Boston, 1896; died at her home in Cambridge, Mass., August 5, from paralysis, aged 69.

Marshall Job Brown, M.D. University of Maryland, Baltimore, 1907; died in Baltimore, September 4, from acute gastritis, aged 27.

Marion D. Ditzler, M.D. Cincinnati College of Medicine and Surgery, 1876; died at his home in Lewistown, Ohio, August 31, aged 56.

Jennie E. Barrows, M.D. Eclectic Medical College of the city of New York, 1872; died at her home in Berkeley, Cal., August 27.

Henry B. Arnold, M.D. Jefferson Medical College; died at his home in California, Pa., January 5, from senile debility, aged 83.

Melvin Rhorer, M.D. University of Louisville, 1871; died at his home in Lexington, September 5, from tuberculosis, aged 68.

James Monroe Carver, (license. Ind., 1897); died at his home in Winchester, March 16, from chronic nephritis, aged 55.

Marriages

H. A. BORN, M.D., to Miss Elizabeth T. Blankner, at Baltimore, August 31.

MILO GOSS SLOO, M.D., Topeka, Kan., to Miss Louise Fuerst of Chicago, August 27.

JOHN R. BUSER, M.D., Delavan, Minn., to Miss Alma Rosine Arnold of St. Louis, Mo., September 1.

HENRY NEILL WHITELOW, M.D., Oakesdale, Wash., to Miss Mary Macklin of Pasadena, Cal., September 7.

SAMUEL STUART HACKWELL, M.D., Blaney, Mich., to Miss Jean Beulah MacTaggart of Bad Axe, Mich., August 31.

THEODORE GAWN FINLEY, M.D., Los Angeles, Cal., to Miss Bertha Madelaine Vilas of Berkeley, Cal., September 1.

HARRY PIDDOCK KNOWLES, M.D., South Haven, Kan., to Miss Eleanor Malinda Porter of Sterling, Kan., September 1.

JOHN WALKER CARTER JONES, M.D., Newport News, Va., to Miss Charlotte Wilson Stephenson of Warm Springs, Va., August 31.

CHARLES KNICKERBOCKER WINNE, JR., M.D., Albany, N. Y., to Miss Sarah Foster Merrill of Baltimore, at New York City, September 1.

Japanese Medical Archives.—The first number of the ninth volume of the archives published in the German language by the medical department of the Tokyo University maintains the high standard of the preceding volumes. It is a work of 174 pages, and contains also the total list of contents from the inception of the *Mitteilungen*. The leading article is on the pathologic anatomy of the nerves and muscles in beriberi, with fine illustrations and tabulation of the findings compared with those of fourteen other workers in this line at home and abroad.

Pharmacology

KEPHALOSE

A French Headache Remedy That Has Been Declared Misbranded

The following communication from Dr. J. R. Hurley, a district health officer at Iloilo, P. I., throws an interesting light on the "patent medicine" business in the Philippine Islands:

"I believe that you are keeping a record of the prosecutions and judgments obtained under the Food and Drugs act. I don't know whether you are interested in such matters in the Philippines or not, but I am reporting the following case for your information. The case was brought against the firm known as 'The Estrella del Norte' doing a general retail business, and which imports and distributes a French proprietary remedy known as 'Kephalse.' All sorts of impossible claims are advertised for this nostrum, including those for which acetanilid is recognized as being useful when intelligently prescribed by a physician. In fact it was the intention of the manufacturers and exploiters to introduce this nostrum in this country as a common household remedy.

"The nostrum was advertised as being harmless, and rules for dosage were contained in a circular which goes with each box, also setting forth the manifold ailments in which it is a 'sure cure.'

"Apparently to comply with the customs regulations, on a small yellow label on the box it states that each dose (one tablet) contains 2 grs. of acetanilid. Inasmuch as it was obviously to be sold broadcast to the native Filipinos, a small proportion of whom can read English at all, much less know what acetanilid is, and on account of the well-known toxic effects of acetanilid, unless prescribed intelligently and with discretion where it is indicated by a physician, it was decided to prosecute the distributing firm under two counts.

"To prove that the nostrum was misbranded, and that the company was selling dangerous drugs without a pharmacist's license, samples were bought in the open market, and, properly labeled, sent to the Bureau of Science, Manila, for analysis. The analysis showed Kephalse to be composed of the following:

Moisture	5.0
Antipyrin and caffeine.....	75.9
Acetanilid	trace
Potassium bromid	3.8
Sodium carbonate	3.3
Sugar	12.0
	100.0

Colored with an anilin dye.

"This fact was brought forward at the trial, together with such other evidence necessary to show that the nostrum contained a dangerous drug, and could not be considered as a household remedy, which proved that the nostrum was misbranded, and that the company was therein selling a dangerous drug, without a physician's prescription, and without a licensed druggist to put it up.

"The court found the Estrella del Norte guilty, and fined the company fifty pesos, an amount equal to twenty-five dollars, gold."

COMMENT.—Dr. Hurley's letter goes to show that the American government safeguards the health of the Filipinos more jealously than it does that of the native American. If the manufacturers of the thousand-and-one acetanilid or antipyrin-containing nostrums sold to the laity in this country should be fined for selling a dangerous drug as a household remedy what a howl of protest would go up. Doubtless Dr. U. S. Boone, of St. Louis, the Antikamnia people or the Proprietary Association of America would at once set to work collecting "statistics" to prove the innocuousness of antipyrin and acetanilid.

Association News

DATE OF NEXT SESSION

Suggestions Desired by Board of Trustees Concerning Los Angeles Session, 1911

The date of the next session of the American Medical Association, to be held in Los Angeles, California, is a matter of considerable importance. The great distance which a majority of those who attend will be obliged to travel, and the length of time necessarily consumed in the journey, make it more essential than usual that the date be the one which shall accommodate the greatest number of those who desire to attend. That several of the members are already taking an interest in the matter is evidenced by a number of letters on the subject which the Chairman of the Board of Trustees has received recently and he takes this opportunity not only to acknowledge their receipt but also to express his thanks to the writers thereof for their views thus presented.

It seems to be generally recognized that the first week in June is not a desirable time for the session for the reason that it conflicts with the examinations and the commencement exercises of a large majority of the medical colleges throughout the country.

The question, then, is whether the session should be held early enough in May or April to permit those living in the east to attend and to return in time to close up their college work for the year, or late in June after the college work is over.

If held during the college term it means that many who desire to attend will be unable to do so, perhaps, and that others will be obliged to make a flying trip, while in favor of a later date it may be said that we shall probably secure very favorable railroad rates, with long time extension and choice of diverse route returning with liberal stop-over privileges. This will enable those who so desire to spend their summer vacations in the west or northwest where there are many beautiful and interesting places to visit.

It has been suggested by some that the weather in Los Angeles late in June might be uncomfortably hot. In order to have some reliable information on the subject, the Chairman of the Board of Trustees has secured, from the director of the government weather bureau at Los Angeles, extensive data concerning the weather—temperature, humidity, winds, etc.—at that point for several years past. The following extracts from a letter received from A. B. Wollaber, local forecaster at Los Angeles, indicate very well what may be expected in the line of weather:

"I take pleasure in stating that a careful examination of the records of this office covering a period of 33 years shows that the temperature conditions here are very equable and, with the exception of an occasional warm spell that might occur at any time throughout the year, not at all unpleasant. The highest minimum temperature on record for May is 70 degrees, the average minimum being 52 degrees. For June the highest minimum on record is 70 degrees, the average minimum is 56 degrees and for July the highest minimum is 76 degrees, average minimum 59 degrees. The minimum temperature may be said to fairly represent the night temperature. The average maximum or day temperature during May is 73 degrees, June 78 degrees and July 82 degrees.

"There is one important factor in our temperature conditions here in Los Angeles not easily shown by figures. I refer to the comparatively short duration of the extremes of both heat and cold. It is very rare for the temperature to stay at a maximum for over two hours at a time and the maximum, as a rule, occurs shortly before or shortly after noon. The temperature rises gradually with the advance of the day, until it reaches the maximum when, under the influence of the daily ocean breeze it drops gradually downward until it reaches the minimum during the early morning hours.

"Another and most important factor to be considered is the low humidity which always prevails during the heat of

the day. During heated terms it is not unusual for the humidity to drop as low as 6 per cent, while the average humidity during the heat of an ordinary summer day ranges between 35 and 50 per cent."

Thermograph and hydrograph trace sheets showing the actual temperature and humidity during this period were received, fully confirming the statements above mentioned. It will thus be seen that the fear of meeting with excessively hot weather, even though the session should be held as late as the last week in June or the first in July, are entirely without foundation.

In setting the date of the meeting the Board of Trustees desires solely to accommodate the greatest number and the Chairman of the Board will be very grateful if all who are interested in the date of the session will indicate to him by postal or letter the date on which it will be most convenient for them to attend.

M. L. HARRIS, Chairman, Board of Trustees.
100 State Street, Chicago.

Correspondence

Registration of Foreign Physicians

To the Editor: To elucidate further the matter of "Registration of Foreign Physicians," I beg leave to comment on the remarks of the writers of the letters in THE JOURNAL, September 3 and 10. Dr. Honeij is right; I am a Canadian, but again he is wrong. I have no friends who wish to register in the United States in the near future or at any other time. If I did have, I should not need to apologize for them, as I am sure that they would acquit themselves honorably.

He is also wrong when he says that I do injustice to American physicians. I reiterate my letter of August 27, and as I spoke truthfully, wherein lieth the injustice? I am sure that the American physician (and not every practitioner is a physician) would rightly resent being classed among the ill-trained aspirants for license to practice in Canada or elsewhere who admit their inability to qualify. That the best colleges of the United States are all I will not deny, but that the graduates from the best colleges find the expressed difficulty in obtaining license to practice in Canada, I question. I could easily qualify the remarks as to the thoroughness of the various state board examinations, but I will pass them over, only saying that they are relatively hard, i. e. comparing one state with another. I do not know the requirements of all foreign countries. I was talking about Canada.

A word about the requirements of Great Britain. The conjoint and other boards require a statement of the time spent in each subject, with an examination in that subject in which the candidate passed successfully, certified to by the professor of the subject, before he is permitted to take the examination. The medical council in London accepts the proper credentials from the best American schools, but not from "diploma mills." The examination is both oral and written.

The only reason I can put forth for Dr. Honeij being referred to the Nova Scotia school is that, poor as is its standing, it came nearer the standard required by the licensing board than did the school from which he graduated. I knew several graduates of American universities when I was in London and these had no difficulty in qualifying for and passing the examination. The fact that Dr. Honeij was a citizen of South Africa is no reason why less should be required of him in order to practice medicine there. I would rather suggest raising the standard of examination, requirements, etc., as a means toward keeping foreign physicians out, than by making appeals for legislation whereby the public must suffer. Possibly in the future the foreign countries in question will lower their standards and then the poorly informed "Doc." will be able to shake hands with his friend from abroad and feel himself an equal.

D. NATHAN, Norristown, Pa.

Fleming Test in Serodiagnosis of Syphilis

To the Editor:—A communication from Dr. Bernard Oettinger calls my attention to an omission in my article on serum diagnosis of syphilis (THE JOURNAL, August 27, 1910) I quoted Bassett-Smith as having found the Fleming modification unsatisfactory. In a later communication Bassett-Smith revises his previous opinion of the Fleming test as the result of further experience (Brit. Med. Jour., 1910, March 12, p. 632). From a series of 500 cases his results were indefinite in only 10 per cent. "A positive result was always reliable, in fact it was obtained in some cases earlier in the disease than with the other methods tried."

HOWARD FOX, New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DATA WANTED ON POSTOPERATIVE TETANY

Dr Francis D. Patterson, 2103 Locust St., Philadelphia, is anxious to secure the details of any hitherto unreported cases of postoperative tetany.

PRAIRIE ITCH

To the Editor:—What is the medical term for what is known in the northwest as "prairie itch"? J. F. KENNEDY, New York

ANSWER:—"Prairie itch" is a term applied in the west and northwest to a number of forms of pruritus, the most frequent of which is a pruritus described under the name of pruritus hiemalis. Similar conditions exist in various parts of the country among farmers, lumbermen, miners and others and are variously called "Texas mange," "Ohio scratches," "swamp itch," "lumberman's itch," etc. Many cases of so-called "prairie itch" are undoubtedly scabies.

PALATABLE COUGH MIXTURES

To the Editor:—I do not like the idea of having to use "patent medicines," consequently I would like to know of a cough mixture that is serviceable and palatable, and also a good anodyne liniment which is not obnoxious to the patient. E. J. G. S.

ANSWER:—The Physicians' Manual of the Pharmacopeia and the National Formulary refers to thirteen official cough mixtures, a sufficient variety from which to select one suitable to almost any case, so that there seems no need of resorting to nostrums. They are:

Elixir plicis compositum	Syrupus chondri compositus
Elixir terpinii hydratis	Syrupus pectoralis
Mistura glycyrrhizæ composita	Syrupus pini strobi compositus
Mistura ammonii chloridi	Syrupus scillæ compositus
Mistura olei plicis	Trochisci ammonii chloridi
Mistura pectoralis	Trochisci glycyrrhizæ et opii
Species pectoralis	

The following anodyne liniments may be used singly or in mixtures:

- Linimentum belladonnæ, N. F.
- Linimentum camphoræ, N. F.
- Linimentum opii compositum, N. F.

TECHNIC OF ELABORATING AUTOGENOUS VACCINES

To the Editor:—Please give me the detailed technic of elaborating autogenous vaccines. After pure culture is obtained, how are the germs killed, counted and put up in the sealed tubes? J. S. WEBER, Davenport, Iowa.

ANSWER:—The bacteria are killed by exposure to a temperature of 60 C. for an hour. They may be counted by Wright's method which is as follows: Equal quantities of the culture are mixed with normal blood; after staining a preparation on a slide, the ratio of bacteria to the red blood cells is determined by counting. Since there are about 5,000,000 red blood cells to the cubic millimeter in normal blood, the number of bacteria is easily calculated from the ratio which has been found. The culture may now be diluted so as to contain the requisite number of bacteria per cubic centimeter and placed in a sterile container which may be hermetically sealed in the frame, if desirable.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Sept. 10, 1910.

Stallman, Geo. E., D.S., Aug. 27, returned to Ft. Sam Houston, Texas, from Leon Springs, Texas.

Harris, H. S. T., lieutenant, Aug. 23, ordered to proceed from San Francisco, to Camp of Instruction, Atascadero, Cal., for duty.

Bevans, James L., capt., Aug. 30, ordered to proceed from San Francisco with one-half of Co. B Hospital Corps, to the Camp of Instructions at Atascadero, Cal., for duty.

Clarke, Jos. T., maj., and Fisk, Owen C., lieutenant, Aug. 25, ordered to proceed with the troops from Ft. Crook, Neb., to the fair grounds, Des Moines, Iowa, for duty during the military tournament at that city. Sept. 26 to Oct. 1, 1910.

Rand, I. W., maj., September 3, left Fort Hancock, New Jersey, on ten days leave of absence.

Bourke, James, capt., August 25, order to proceed with troops from Fort Leavenworth, Kansas, to the Des Moines Military Tournament, etc.

Murtaugh, John A., maj.; Van Dusen, James W., capt.; and Fuller, Leigh, maj.; August 25, ordered to proceed with troops from Fort Riley, Kansas, to the Des Moines Military Tournament, etc.

Barney, Charles N., maj., September 6, left Fort Wadsworth, N. Y., enroute home awaiting retirement, being granted leave of absence to December 31, 1910.

Grubbs, Robert B., maj., September 1, reported on detached duty at Fort Sam Houston, Texas, from Camp at Leon Springs, Texas.

Hallett, Harley J., M.R.C., September 6, granted 30 days leave of absence terminating not later than November 3, 1910.

Baker, Charles L., M.R.C., September 2, now on duty in Sequoia, and the General Grant National Parks, will accompany Troop A, 1st Cavalry to the Presidio of San Francisco, and on arrival will report to the commanding officer of that post for duty.

Reynolds, Royal, lieutenant, Sept. 7, ordered to Presidio of San Francisco, for temporary duty.

Allen, John H., maj., Sept. 7, left Fort Myer, Virginia, on ten days leave of absence.

Walker, Thomas C., M.R.C., September 7, granted leave of absence for two months to take effect on arrival in the United States.

Canaday, George H., D.S., September 3, left from duty at Fort Baker, California, enroute to the Philippine Islands, for duty.

Medical Corps, U. S. Navy

Changes for the week ended Sept. 3, 1910:

Fitts, H. B., medical inspector, placed on the retired list from Aug. 23, 1910.

Grove, W. B., surgeon, detached from the Naval Training Station, Newport, R. I., and ordered to duty at the Naval Medical School Hospital, Washington, D. C.

Leys, J. F., surgeon, detached from temporary duty in the Bureau of Medicine and Surgery, Navy Department, and ordered to the Naval Training Station, Newport, R. I.

Cather, D. C., P. A. surgeon, detached from the Naval Academy and ordered to the Iowa.

Pryor, J. C., surgeon, detached from the Navy Yard, Pensacola, Fla., and ordered to the Bureau of Medicine and Surgery, Navy Department.

Jenkins, H. E., asst.-surgeon, detached from the Franklin and ordered to the Montana.

Hermesch, H. R., asst.-surgeon, detached from the Montana and ordered to temporary recruiting duty at Knoxville, Tenn.

Thomas, G. E., asst.-surgeon, detached from the Dubuque and ordered to temporary duty at the Naval Hospital, Mare Island, Cal.

Changes for the week ended Sept. 10, 1910.

McDonnell, W. N., passed asst.-surgeon, detached from the Naval Academy and ordered to the Massachusetts.

Boyd, J. C., medical director, detached from command of the Naval Medical School, Washington, D. C., and ordered to duty as a member of the naval retiring board, navy yard, Washington, D. C.

Wise, J. C., medical director, detached from duty as a member of the naval retiring board, navy yard, Washington, D. C., and directed to wait orders.

Gatewood, J. D., medical inspector, detached from duty on board the California as fleet surgeon of the Pacific Fleet and ordered home to wait orders.

Norton, O. C., medical inspector, detached from the navy and marine recruiting stations, New York, and directed to wait orders.

Wieber, F. W. F., medical inspector, detached from the naval recruiting station, Baltimore, and ordered to duty at the naval and marine recruiting station, New York.

Lowndes, C. H. T., surgeon, detached from the naval dispensary, Naval Medical School Hospital, Washington, D. C., and ordered to the Baltimore Naval Recruiting Station.

Freeman, G. D., surgeon, detached from the Montana and ordered to duty at the naval dispensary, Naval Medical School Hospital, Washington, D. C.

Fiske, C. N., surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to duty at the Naval Medical School, Washington, D. C.

Smith, C. G., surgeon, detached from the naval hospital, Newport, R. I., and ordered to the Montana.

Cohn, I. F., passed asst.-surgeon, detached from naval hospital, Philadelphia, Pa., and ordered to the Castine.

Hull, H. F., passed asst.-surgeon, detached from the Paducah and ordered to the Panther.

Grieve, C. C., passed asst.-surgeon, detached from the navy recruiting station, Chicago, and ordered to the Prairie.

Dean, T. W. S., passed asst.-surgeon, detached from the *Prairie* and ordered to the naval magazine, Iona Island, N. Y.

Manchester, J. D., passed asst.-surgeon, detached from the *Panther* and ordered to the navy recruiting station, Chicago.

Foster, T. G., passed asst.-surgeon, detached from the naval hospital, Mare Island, Cal., and ordered to duty at the naval hospital, Cananeo, P. I.

White, E. C., passed asst.-surgeon, detached from the navy recruiting station, St. Louis, and ordered to temporary duty at the naval hospital, Mare Island.

Roland, M., asst.-surgeon, detached from the *Castine* and ordered to duty at the naval hospital, Philadelphia.

Miller, J. T., asst.-surgeon, detached from the *North Carolina* and ordered to the navy recruiting station, St. Louis.

Kelley, H. L., asst.-surgeon, detached from the naval hospital and ordered to the navy yard, Mare Island, Cal.

McMullin, J. J. A., asst.-surgeon, detached from the naval magazine, Iona Island, N. Y., and ordered to the *North Carolina*.

Bloodorn, W. A., asst.-surgeon, detached from the navy yard, Mare Island, Cal., and ordered to duty at the naval hospital, Cananeo, P. I.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Sept. 7, 1910:

Pettus, W. J., asst.-surgeon-general, while on leave in England, directed to proceed to Southampton, Liverpool and Glasgow, on special temporary duty relative to measures for the prevention of the introduction of Asiatic cholera into the United States, and then resume leave status.

Kerr, J. W., asst.-surgeon-general, detailed to represent the Service at the annual meeting of the American Public Health Association, to be held in Milwaukee, Wis., Sept. 5-9, 1910.

Carter, H. R., surgeon, detailed to proceed to certain ports in Europe on special temporary duty relative to measures for the prevention of the introduction of Asiatic cholera into the United States.

Vasdin, Eugene, surgeon, granted 1 month's leave of absence from Aug. 22, 1910, on account of sickness.

Cobb, J. G., surgeon, directed to proceed to Manitowac, Wis., on special temporary duty. Detailed to represent the Service at the annual meeting of the American Public Health Association, to be held in Milwaukee, Wis., Sept. 5-9, 1910.

Goddines, H. D., surgeon, directed to proceed to Marseilles and Genoa, Italy, on special temporary duty relative to measures for the prevention of the introduction of Asiatic cholera into the United States, and then rejoin station at Naples, Italy.

McMullen, John, P. A., surgeon, granted 21 days' leave of absence from Sept. 3, 1910.

Anderson, John F., P. A., surgeon, granted 1 day's leave of absence from Sept. 2, 1910, under paragraph 189, Service Regulations.

Wille, C. W., P. A., surgeon, directed to proceed to Ashtabula, Ohio, on special temporary duty.

Lloyd, Bolivar J., P. A., surgeon, granted 29 days' leave of absence from Aug. 20, 1910.

Spratt, R. A., P. A., surgeon, granted 1 day's leave of absence, Aug. 27, 1910, on account of sickness.

Frost, W. H., P. A., surgeon, directed to proceed to Grundy Center, Iowa, on special temporary duty.

Mullan, E. H., P. A., surgeon, granted 5 days' leave of absence from Aug. 1, 1910, under paragraph 191, Service Regulations.

Ashford, F. A., P. A., surgeon, granted 1 month's leave of absence from Aug. 30, 1910.

Kolb, Lawrence, asst.-surgeon, granted 7 days' leave from Aug. 28, 1910, under paragraph 191, Service Regulations.

Drew, A. D., acting asst.-surgeon, granted 30 days' leave of absence from Sept. 15, 1910.

Marr, H., acting asst.-surgeon, granted 15 days' leave of absence from Sept. 5, 1910.

Moorer, M. P., acting asst.-surgeon, granted 6 days' leave of absence from Aug. 14, 1910.

O'Neill, Arthur A., acting asst.-surgeon, granted 10 days' extension of leave of absence from Aug. 9, 1910, on account of sickness.

Ransom, S. W., acting asst.-surgeon, granted 30 days' leave of absence from Sept. 1, 1910.

Schuster, B. L., acting asst.-surgeon, granted 3 days' leave of absence from Sept. 7, 1910.

Walker, T. D., acting asst.-surgeon, granted 1 day's leave of absence, Sept. 8, 1910.

Wetmore, W. O., acting asst.-surgeon, granted 3 days' leave of absence from Aug. 11, 1910, under paragraph 210, Service Regulations.

Society Proceedings

COMING MEETINGS

- Amer. Acad. of Ophthalm. and Oto-Laryn., Cincinnati, Sept. 19-21
- Amer. Asso. of Obstetricians and Gynecol., Syracuse, Sept. 20-22
- Amer. Roentgen Ray Association, Detroit, September 28—October 1
- American Association of Railway Surgeons, Chicago, October 1
- Medical Association of the Southwest, Wichita, Kan., October 19-21
- Michigan State Medical Society, Bay City, September 11-12
- Minnesota State Medical Association, Minneapolis, September 28-29
- Nevada State Medical Association, Lake Tahoe, Cal., Sept. 19-21
- Pennsylvania, Medical Society of State of, Pittsburg, October 3-6
- Utah State Medical Association, Salt Lake City, October 3-4
- Vermont State Medical Society, St. Albans, October 13-14
- Virginia, Medical Society of, Norfolk, October 25-28
- West Virginia State Medical Assn., Parkersburg, Oct. 5-7
- Wyoming State Medical Society, Casper, September 27

AMERICAN PUBLIC HEALTH ASSOCIATION

Thirty-Eighth Annual Meeting, Held at Milwaukee, Wisconsin,
Sept. 6-9, 1910

The President, DR. CHARLES O. PROBST, Columbus, Ohio, in the Chair

Addresses of Welcome

At the general meeting of the Association, which was open to the public, addresses of welcome were delivered on behalf of the city of Milwaukee, by Hon. Emil Seidel, Mayor; on behalf of the State of Wisconsin, by Judge William J. Turner, and on behalf of the medical profession by Dr. W. A. Batchelor.

The responses to these addresses of welcome were made on behalf of the United States, by Dr. Richard Lewis, Raleigh, N. C.; on behalf of the Dominion of Canada, by Dr. Frederick Montzambert, Director General of Public Health, Ottawa, Canada; on behalf of the Republic of Mexico, by Dr. J. E. Mongarás, Mexico City, Mexico, and on behalf of the Republic of Cuba, by Dr. Frederic Torralbas, Havana, Cuba.

Officers Elected

The following officers were elected: President, Dr. Robert M. Simpson, Winnipeg, Manitoba; first vice-president, Dr. Fernando Lopez, Mexico City; second vice-president, Dr. John F. Anderson, Washington, D. C.; third vice-president, Dr. Gerhard A. Ludwig, Milwaukee, Wisconsin; secretary, Dr. William C. Woodward, Washington, D. C.; treasurer, Dr. Frank W. Wright, New Haven, Connecticut.

Havana, Cuba, was selected as the place for holding the next annual meeting.

Report of the Joint Committee on Mailing Infectious Material

DR. JOHN F. ANDERSON, Washington, D. C.: The proposed modifications of the regulations for the mailing of infectious material have finally been promulgated by the postoffice department under date of April 22, 1910. The committee believes that its efforts have resulted in the promulgation of regulations which are a decided improvement over those formerly enforced. The regulations have been considerably simplified. The committee was successful in having the privileges of the mails for the transmission of infectious material extended to include federal, state, municipal and other laboratories on the issuance of a formal permit by the Postmaster General.

The report was accepted, and the committee discharged.

Studies on Self-Purification of Streams

DR. G. F. RUEDIGER, Grand Forks, N. D., detailed a series of experiments on this subject, and then presented the following conclusions: Colon bacilli and typhoid bacilli disappear much more rapidly from polluted river water during the summer months than during the winter months when the river is covered with ice and snow. The destruction of these organisms in the river water during the summer months is in large measure due to the growth of microscopic plants and other organisms which apparently give off dialyzable substances which are harmful to the *B. coli* and *B. typhosus*. That such substances are given off by the saprophytic bacteria was clearly shown by Frost several years ago, and my experiments confirm his by attacking the problem in a slightly different way. These effects are lost in the winter as no growth takes place at 0°C. The direct rays of the sun also are an important factor and their effects are entirely lost when the river is covered with a thick layer of ice and snow.

The practical value of this investigation is evident. It explains why some of our northern cities where sewage polluted river water is used in the water works system are more frequently troubled with outbreaks of typhoid fever during the winter months. This was illustrated at Minneapolis last winter, and I believe was true at Lawrence, Mass., before the installation of the filter. When bacteriologic analyses of sewage-polluted river water are to be made at the site of a proposed water works intake pipe, it is important that samples should be collected and analyzed both in the winter and in the summer. Analyses of samples collected during the summer do not give reliable information in regard to the

condition of that water when the river is covered with ice and snow. The analyses show that the pathogenic bacteria from the sewage travel several times as far in the water under the ice, before they are destroyed, as they will in an open river during warm weather.

DISCUSSION

DR. H. W. HILL, Minneapolis: The experiments which we undertook confirm the observations and conclusions of Dr. Ruediger regarding winter river typhoid and summer typhoid. We have found that typhoid bacilli may die out in going down the river in summer under conditions where they would exist during the winter.

DR. PETER H. BRYCE, Ottawa, Canada: I notice that the author seemingly did not take into account the question of sedimentation during the two days in the river. Pettenkofer's tests long ago at Munich showed that about 90 per cent. of all bacteria in water by dilution and by sedimentation had disappeared within a distance of 10 miles.

DR. E. C. LEVY, Richmond, Va.: At the Winnipeg meeting of this Association Dr. Freeman and I presented a joint paper on typhoid in the south, with special reference to the disease in Richmond. In that paper we brought out the point which has been explained here today, but made no attempt to explain why water-borne typhoid was especially a disease of winter months, though we proved to our satisfaction that such was the case. Our opinion was arrived at purely and simply from an epidemiologic standpoint; we had no laboratory facts to corroborate it. During the years since that time our views have been confirmed in every way to such an extent that in Richmond, after we have passed the winter months, we do not worry about water typhoid.

DR. G. F. RUEDIGER, Grand Forks, N. D.: I do not think that the factor of sedimentation would alter the experiments in any way; so far as I can see, there would be as much sedimentation in winter as in summer. This factor need not be considered in this particular study. Another study might be made based on the factor of sedimentation.

The Sanitary Registration of Houses in Mexico

DR. J. E. MONJAS, Mexico City: The board of health in Mexico has made great progress in the sanitary records of houses in that city. The plan of the city shows the houses in which persons have died of tuberculosis. Each house is shown on the plan by a number which corresponds to the number of cases observed in that house, and each one has its separate file containing all the details of cases as well as the work which has been ordered to improve the sanitary conditions of the houses. With this plan it is possible to show the number of deaths caused by tuberculosis or any of its allied affections from the year 1891, with the ages and sex of those who died, and the wards in the City of Mexico in which those deaths were recorded. The sanitary registry of the houses, therefore, constitute a necessary institution in all cities by the aid of which the sanitary and municipal authorities, as well as the general public, can obtain easy and certain knowledge of the houses which constitute foci of infection.

DISCUSSION

DR. FREDERICK TORRALBAS, Havana, Cuba: The work Dr. Monjas has described has been carried on in Havana for some years. It is the duty of the sanitary inspector to obtain the complete history of houses. An inspection is made of from 1,800 to 2,000 houses a day, so that cases of tuberculosis are easily traced.

Sanitation of Bakeries and Restaurant Kitchens in Chicago

MR. CHARLES B. BALL, Chicago: In the Chicago Department of Health's experience with bakeries and restaurant kitchens we are led to the conclusion that new installations of restaurant kitchen are required. Ample space must be provided in which the employees may perform the various operations. The contingency of expansion at a future date should be considered, as the tendency to enlarge the dining room, without providing additional kitchen facilities, is found in a great many cases. The arrangement of the various appliances in their relation to each other should insure the isolation

tion of dishwashing and garbage storage from the handling of food. Adequate provision must be made for the removal of cooking odors, not alone from the ranges, but also from vegetable boilers, so as to avoid nuisance in other parts of the building and in the neighborhood. The Underwriters' Association now requires that ventilation ducts from large ranges be built of heavy iron plate and carried through the top of the building without any other connections, so that the grease and soot may be burned out of them as from a chimney flue, without incurring fire danger to other rooms. Ample toilet facilities and wash-rooms, separate for each sex and apart from those provided for the public, must be furnished. The wash-basins should be located outside of the toilet rooms in order that it may be apparent to those in charge that the hands are cleansed after leaving the toilets. Proper locker rooms, with exceptional means of ventilation, must be provided in order to avoid the nuisance of the storage of either street or working clothes in tightly closed cupboards. Well-ventilated refrigerators are required in numbers sufficient to afford separation for the different classes of food and especially for milk and butter. The best examples of the application of these rules of design to new bakeshops and kitchens are to be found in upper stories, preferably the top story, of certain high buildings. Such installations of superior type are at present by no means rare.

Practical Methods of Supervising the Milk Supply of Cities

MR. J. BOSLEY THOMAS, Baltimore, discussed permits for the sale of milk and cream; methods of keeping records; collecting samples and recording results; methods of transporting and delivering milk; communicable diseases; diseases in houses where milk is delivered in bottles; bovine tuberculosis; supervision of dairy farms; butter-fats standards, and said that while there are many admirable methods used by various authorities in the administrative control of the milk supply, there is little or no standardization of these methods. It therefore seems advisable, he said, that some representative society or body should appoint a committee to establish or recommend standard practical methods that would be capable of universal use.

Saving Children From Milk-Borne Diseases

MR. NATHAN STRAUS, New York: The old city of New York, now the Borough of Manhattan, has established a new record in the saving of the lives of babies. Notwithstanding unusually severe periods of intensely hot weather the past summer, there have been fewer deaths of children under five years than in any preceding summer, and for the first time in the history of the city the summer mortality has fallen to a rate less than 50 per thousand per annum. When I first undertook to protect the babies of New York from milk-borne diseases by supplying pasteurized modified milk in 1892, the summer saw the dying of 6,612 children under 5 years, making the rate per thousand per annum 136.1. With the steadily increasing use of pasteurized milk there has been a steady decline in infant mortality, until the summer just ended showed only 3,900 deaths in a population of children larger by 125,000 than that of 1892. In other words, in 1892, 961 children out of every 1,000 survived the summer, while in 1910 there were 988 who escaped death out of each thousand. In my experience the saving of children from milk-borne diseases warrants the assertion that the pasteurization of milk supplies of our cities, under careful health department supervision, would infallibly reduce the death rate.

President's Address: A Renaissance in Health

DR. CHARLES O. PROBST, Columbus, Ohio: A renaissance in health is at hand. Never before has the public shown such interest and enthusiasm in health measures. Never has it so nearly reached a realization of the immense possibilities in preventing sickness and prolonging life. The time is ripe for cooperation of the widest sort. Without attempting even to outline a plan for cooperation, I would recommend that by committee or otherwise the question be investigated of the possibility of uniting or concentrating the efforts of the different national organizations in the four countries represented

whose work concerns in any large measure the promotion of the public health. If moral prophylaxis comes within the scope of social hygiene, the question of providing suitable amusement for the working people becomes of greatly increased importance. Especially is this true for working girls. The lack of such places in large cities is among the chief causes of the social diseases. The department of child hygiene of the Russell Sage Foundation, established in 1908, occupies a part of this field. Its purpose in part is to conduct researches and promote activities favorable to the physical, moral, and intellectual welfare of children, especially public recreation, and the health and progress of school children. This association stands for the highest possible standards in public health. In various ways it has given weighty support to many health movements for improving general health conditions, and notably in the interest of pure food and the establishment of a national health department. The family physician must long remain the chief instructor and most potent factor in preventing the spread of dangerous infectious diseases. The strongest nation, the one of greatest achievements, will in the end be the one that gives the greatest amount of intelligent care to the health of its subjects. Eventually all health interests should be administered by the government. If the first step towards the centralization, or at least the cooperation, of the many associations devoted to health problems can be taken at this meeting, it may be the means of hastening the day when every individual will be given time and opportunity for the pursuit of health and happiness, and the certain knowledge of how and where to find them.

Organization of the Pennsylvania State Department of Health

DR. SAMUEL G. DIXON, Harrisburg, Pa.: From July 22, 1907, to June 30, 1910, 32,247 poor tuberculous sufferers had received the skilled medical aid and the attention of trained nurses which the department's 115 dispensaries provide. The death-rate from tuberculosis in Pennsylvania has fallen from 134 to 120 per 100,000 of population in 4 years. This means a saving of 1,000 lives annually. From October, 1905, when the state began its free distribution of diphtheria antitoxin among the poor, down to Dec. 31, 1909, 20,794 patients with this dread disease, mostly little children were treated with the life-saving serum. We know by statistics that without antitoxin 42 out of every 100 of these children would probably have died, but with the aid of the state's antitoxin the death-rate among these poor little sufferers was reduced to 8.48. Free antitoxin was also given to 15,125 patients, mostly children, who had been in contact with the disease. All but a very few of these were absolutely protected against diphtheria. A very low estimate of the saving of child life resulting from the state's free distribution of diphtheria antitoxin since 1905 is about 8,000 lives, a pretty good investment of the tax payer's money. And what of typhoid fever in view of all this work for pure water? In 1906, 56.5 out of every 100,000 people died from this disease; in 1907, 50.3; in 1908, 34.4; and in 1909, 23.9. That is, there are now living 2,363 people who, had the death rate of 1906 prevailed in 1909, would have died from typhoid. In 1906 and 1907, the death rate in Pennsylvania per 1,000 of population was 16.5; in 1908, it had dropped to 15.7 and in 1909 to 15.3.

Executive Methods in Preventive Medicine

DR. HENRY B. HEMENWAY, Evanston, Ill.: Health administration was formerly local in nature. The science of public health has now advanced far beyond administration, especially in this country. The American law requires a separation of the three branches of government. Health administrators, being of the executive branch, have no legislative power. They may not, therefore, issue any orders, or regulations except as distinctly provided in the laws under which they are acting. All health authority is derived from the police power of the state. Police power is a system of precaution for the prevention of crimes and calamities. It is a necessary but also a dangerous power; and because of the danger to individual liberty, the courts are inclined to scrutinize its operations closely to prevent abuse. The police power of public health starts from the idea of nuisance, and presupposes legislative deter-

mination in great detail. Even though administered by municipal officers, public health work is essentially state in nature; and in the absence of special constitutional provisions to the contrary, the state has the right to appoint and regulate the acts of municipal health officers. The protection of the state against damage suits is extended to all health officials, so long as they act within the law, even though error has been committed, and damage results to individuals. As compared with other countries, American state executives are ill-organized and weak, and one of the weaknesses is shown in the tendency to the appointment of boards, often serving without pay. Since executives have no legislative power, an executive board loses in responsibility, decision, activity and dispatch, without compensatory advantage. There is no more reason why a physician should donate his public health service than that a lawyer should serve without pay as a judge, or a banker should give the use of the money needed for public improvements. Health laws should be enacted by the state legislature. The entire health administration of a state should be recognized as one body, having a single head to whom all local and district officials are responsible. Every man should be held responsible for a definite portion of the work.

Executive duties are either ministerial or discretionary. If ministerial, the officer may only do that which is required. If discretionary, he may do anything within that discretion; but neither his acts nor legislation for his guidance, may be arbitrary or unreasonable. If the officer acts beyond the provision of the law, he may be sued as a private wrong doer. Health legislation should be definite, not in general terms, best to safeguard individual liberty.

Matters of technical detail in the work of the office may be largely left to subordinate; but the executive must personally and frequently decide on questions of administration. In other words, the head of the department should be a professional administrator with a broad knowledge of sanitary science, not merely a sanitarian or a party politician. At least once a year there should be a conference of state and district officers, at which proposed legislation may be discussed and prepared for presentation to the legislature for enactment.

General Discussion on Public Health Matters

DR. C. A. HARPER, Madison Wis., discussed the relation between state and municipal boards of health, saying that the interchange of ideas, and the knowledge required by each health officer in knowing how other health officers do their work and meet certain emergencies, fully justifies the labor and expense incident to holding state or district conferences. If the health officer expects to impart knowledge to others, he must know his subject thoroughly and realize the important rôle which sanitation and public hygiene play in the prevention of diseases.

PROF. E. H. S. BAILY, North Dakota, spoke of the advantages of cooperation between the state board of health and state universities.

DR. GUSTAV F. RUEDIGER, Grand Forks, N. D., spoke of the relation of the state university of North Dakota to the State Board of Health, and favored placing the state board of health laboratory under the control and regulation of the state university, under the direction of the professor of bacteriology and pathology.

DR. CHARLES A. HODGETTS, Ottawa, Canada, pointed out the functions of the Canadian Commission of Conservation and Public Health.

DR. H. W. HILL, Minneapolis, spoke of the relations of universities to public health work.

MAYOR SEIBEL, Milwaukee, Wis., discussed social economics and public health, and said:

and mineral deposits. These, with machinery, are important factors in wealth production; but the most important factor of all in wealth production is human labor. Without labor of hand and labor of brain applied to raw material, there is no civilization thinkable. The greatest of all natural resources is human life with its accompaniment of labor. It is good and excellent work to conserve land and timber and water. Land has a value. Timber has a value, and so have water

Idaho April Report

Dr. O. J. Allen, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, April 5-6, 1910. The number of subjects examined in was 11; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 38 of whom 24 passed and 14 failed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Denver and Gross Coll. of Med.....	(1908) 76; (1909)		80
George Washington University.....	(1907)		77
Northwestern University Medical School (1890) 75.9; (1906) 77;	(1909) 80.		
American Medical Missionary College.....	(1904)		77
College of Physicians and Surgeons, Chicago.....	(1896)		76.6
University of Michigan, Dept. of Med. and Surg. (1897) 76; (1903) 75, 88.			
Hamline University	(1909)		86
Barnes University.....	(1906) 75; (1907) 75; (1908)		75
Ensworth Medical College.....	(1908)		75
St. Louis College of Physicians and Surgeons....	(1903)		79
University of Buffalo.....	(1904)		77
Eclectic Medical Institute, Cincinnati.....	(1897)		75
Starling-Ohio Medical College.....	(1909)		75
Willamette University	(1910)		76
Jefferson Medical College.....	(1906)		82
Medico-Chirurgical College of Philadelphia.....	(1902)		76
McGill University, Canada.....	(1889)		79
FAILED			
Rush Medical College.....	(1875)		55
Bennett Medical College.....	(1907)		62
Northwestern University Medical School.....	(1909) 54.		73
University of Iowa, College of Medicine.....	(1898)		59
Kentucky University	(1904)		70
Grand Rapids Medical College.....	(1899)		59
St. Louis University	(1905)		54
Ensworth Medical College	(1909)		44
University of Nebraska	(1903)		70
Lincoln Medical College	(1909)		68
Memphis Hospital Medical College.....	(1891)		31
University of Nashville.....	(1902)		72
University of Tennessee	(1894)		43

The following questions were asked:

HISTOLOGY

1. Define and locate neuroglia, areolar, hyaline, epithelium, adipose. 2. Describe adenoid tissue. 3. Give the histology of voluntary muscle. 4. Describe the structure of the spleen. 5. Describe a cross-section of the spinal cord.

ANATOMY

1. Describe briefly the lymphatic system, giving terminations. 2. Describe the sympathetic nervous system. 3. Name the arteries given off by the abdominal artery. 4. Describe the portal circulation in detail. 5. What is Scarpa's triangle, circle of Willis, Gimbarnat's ligament, foramen of Winslow, pineal gland, thymus gland, mediastinum, oesophagus, parathyroid, antrum of Highmore?

GYNECOLOGY

1. What important blood-vessels are in close relation to the female ureters, between the bifurcation of the common iliacs and the point where they enter the bladder, and what is their distance from the uterus from each other at that point? 2. Name the most frequent causes of pelvic inflammations, avenues of infection and tissues most likely to be invaded. 3. Give causes, symptoms of and treatment for contraction of the bladder in the female. 4. Describe the operation for eradication of cancer of the mammary gland. 5. Define colpitis, colptosis, atresia, kraurosis, amenorrhea, menorrhagia, metrorrhagia, dysmenorrhea, salpingitis, proliferating. 6. Name the different varieties of dysmenorrhea mentioned in the textbooks and differentiate between the membranous form and an early abortion. 7. Describe in detail the examination of a case of suspected pelvic disease. 8. Give etiology, pathology and treatment of acute cystitis. 9. Give treatment for simple catarrhal vaginitis. 10. Differentiate between carcinoma of the cervix uteri and granular inflammation, myoma, polyp and condyloma.

PATHOLOGY

1. State the principal pathologic lesions of senility. 2. Uncinariasis, give etiology and pathology. 3. Give pathology of septicemia and of pyemia. 4. Acute anterior poliomyelitis; give pathology. 5. Describe the pathologic lesions of syphilis. 6. Arteriosclerosis; give etiology and pathology. 7. Describe the process of atrophy and of hypertrophy. Name types of each. 8. Describe the *Staphylococcus pyogenes aureus*. The *Streptococcus lanceolatus*. 9. What are infectious granulomata? Name and describe types. 10. State the pathology of Basedow's disease; of Addison's disease.

PRACTICE OF MEDICINE

1. Differentiate empyema from pulmonary abscess. 2. Differentiate aortic regurgitation from mitral regurgitation. 3. Make a diagnosis of aorta. 4. Describe the symptoms of 5. Give the symptoms and treatment of gastric ulcer. 6. Icterus hydropnephrosis. State its causes and describe its treatment. 7. Give the symptoms of (a) acute lead poisoning; (b) chronic lead poisoning. 8. Define myxo-

dema and give its treatment. 9. Describe the symptoms of a case of apoplexy due to cerebral hemorrhage. 10. Give the symptoms and treatment of locomotor ataxia.

PHYSIOLOGY

1. What is the chemical reaction of (a) blood, (b) urine, (c) sweat, (d) uterine secretion and (e) vaginal secretion? 2. Describe a complete physiologic revolution of the heart. What is the office of the columnae carneae? 3. How is asphyxia produced? What are the causes of death from asphyxia? Locate the respiratory center. 4. Name the secretions of the alimentary canal, their reactions, active principles and functions. 5. Describe by drawing or otherwise the different glands of the stomach. 6. What are the functions of the pancreas? What effect would extirpation of the pancreas have on digestion? 7. Describe the portal circulation. 8. What are the physiologic functions of the liver? 9. Describe the renal circulation. State the function of the (a) vas deferens, (b) the vesiculae seminales and (c) the prostate gland. 10. Define (a) afferent, (b) efferent, (c) trophic, (d) inhibitory, (e) motor and (f) vasomotor nerve fibers.

OBSTETRICS

1. What is the character of the liquor amnii and what are its sources and uses? 2. Name the fetal envelopes from without inward. 3. Describe the fetal heart-sounds, give their rate, and state when and where they are best heard. 4. Give the etiology, symptoms and management of albuminuria of pregnancy without structural kidney lesions. 5. Describe and give the functions of the perineal body. 6. Describe the mechanism of labor in the R. O. P. presentation. 7. What is inversion of the uterus, what are its causes and symptoms, and how should it be treated? 8. Give the causes, symptoms and prognosis of rupture of the uterus during labor, and state how such an accident should be managed. 9. What are the symptoms and physical signs of ectopic gestation? From what must it be differentiated? What is the etiology? 10. State the causes, symptoms, pathology, treatment and sequelae of puerperal phlebitis.

DIAGNOSIS

1. What is the practical import of hematuria and how can its source be diagnosed? 2. What conditions might cause alvine discharges containing fat? 3. What is the diagnostic significance of dropsy? 4. Describe the natural heart sounds. 5. Differentiate empyema from pulmonary abscess. 6. Give the causes of vertigo. 7. Give the area of normal heart dullness. What conditions increase the area of heart dullness? 8. In what diseases can we employ the microscope to advantage as an aid in diagnosis? 9. Give the differentiating points between rubeola and röteln. 10. Give the physical findings in the different stages of lobar pneumonia.

MATERIA MEDICA AND THERAPEUTICS

1. Define and describe alkaloids. 2. Name five changes of the official Latin titles in the eighth revision of the U. S. P. 3. Give the official names of wahoo, pennyroyal, corn silk, oxgall, nutmeg, chamomile, hemlock, yellow jasmine and Rochelle salts. 4. Name the official preparations and doses of digitalis, cascara sagrada, ipecacuanha and strophanthus. 5. Give the official name, the ingredients in and dose of Tully's powder. 6. State the composition and method of preparing liquor potassii citratis. Should it be freshly prepared? Has the strength of liquor ferri et ammonii acetatis been increased or decreased in the eighth revision of the U. S. P. and to what extent? 7. What is incompatibility in medicine, and what are the different kinds of incompatibles? Give an example of each. 8. Give the physiologic action and therapy of saline purgatives. 9. What therapeutic uses has chloroform other than as an anesthetic? 10. Explain the distinction between physiologic action and the therapeutic use of medicinal agents.

CHEMISTRY AND TOXICOLOGY

1. Give symbol, atomic weight and source of bismuth. (b) Name official preparations. (c) State how citrate of bismuth is prepared without giving proportions. 2. Give chemical formula, correct name and source of black oxide of manganese. 3. Give formula for chromic acid. (b) What is its appearance and solubility? (c) How used medicinally? (d) How is it affected by alcohol, ether, glycerin and other organic solvents? 4. Explain the chemical reaction that takes place in the preparation of spts. mindereri. (b) Also in the preparation of liquor potassii citratis. 5. Give common name for $ZnSO_4$, KNO_3 , KBr , $KClO_3$, $Zn(OH)_2$, $Zn(C_2H_3O_2)_2$. 6. What would you do if you were called to a case of poisoning supposed to be caused by arsenic? (b) Strychnin? (c) By formaldehyd? 7. How is chloral made? (b) What is the best treatment of poisoning by it? 8. Give the antidote for poisoning by iodine, aqua ammoniac. 9. What is the source of creosote, its dose, purpose used and antidote? 10. Should or should not oil be used in phosphorus poisoning? Give reason for your answer.

HYGIENE

1. What relation do ground air and ground water bear to each other and to disease? 2. Name four diseases reduced to their minimum of frequency by the lowering of the ground water and purification of the soil? 3. What property do those pathogenic germs possess, which retain their existence for long periods, outside a natural medium of growth? 4. What are the purposes fulfilled by food, and under what heads are the proximate constituents of food and the various food substances classified? 5. How many ounces of water free food are required for daily subsistence, (2) for ordinary work, (3) for laborious work? 6. What are the most favorable conditions for the care and preservation of milk? 7. Explain the germ theory of the contagia and how immunity is produced by the disease itself. 8. What are the objections to tent life for consumptive patients during the summer, and how can they be met by tent construction? 9. What beneficial effect has domestic cooking on tuberculous meat and milk? 10. Define zymotic, contagion, intoxication, specific, communicable, caloric, hygienic, sanitary.

Book Notices

STUDIES IN RELATION TO MALARIA. By Samuel T. Darling, M.D., Chief of Laboratory of the Board of Health, Department of Sanitation, Isthmian Canal Commission. Paper. Pp. 28. Washington: (Superintendent of Documents) Government Printing Office, 1910.

In many malarial regions it is important that the varieties of mosquitoes common to such regions should be recognized, their breeding-habits studied and a determination made of the species of anophelines capable of transmitting the disease. This is explained by Samuel T. Darling, chief of the laboratory of the board of health of the Canal Zone, in a pamphlet issued by the Isthmian Canal Commission. The anophelines insusceptible to malaria may be more limited in their choice of breeding-places than the other varieties, so that in the work of malarial mosquito destruction the latter may be disregarded, and attention given wholly to the breeding places of those varieties responsible for the transmission of malarial fever. With regard to man as a host it is necessary to have some knowledge of the limits of his infection-ness, i. e., the number of the sexual forms of the parasite in the blood necessary to infect susceptible mosquitoes. Other matters of importance are latent malaria, the effect of quinin on the parasites in man, the value of larvicide, algacides, agents destructive of ditch-grass, the size of screen mesh necessary to keep out mosquitoes, etc. After giving a minute description of the different species of anophelines and naming those susceptible to infection with the malarial parasites as shown by his experiments, together with the methods of conducting the experiments, collecting the larvæ, breeding, biting and infection experiments, estimation of gametes, care of the mosquitoes after biting, examining for zygotes, description of the malarial parasites in the mosquitoes, blood examinations, etc., Darling states that it was noticed that patients were discharged from the hospital after the temperature was normal but while the peripheral blood still contained more than a sufficient number of gametes to infect susceptible mosquitoes. Experiments were therefore carried out to determine the limit of infectiousness of such individuals, and it was found that persons with more than 2 gametes per centimeter must be regarded as gamete-carriers, and should not be discharged or treatment discontinued until the gametes were reduced well below the limit of infectiousness, which was determined to be 1 gamete for every 500 leukocytes. This question of the complete destruction of the sexual forms in man is generally overlooked, but is important in delimiting malaria, and may be accomplished by appropriate quinin treatment of all gamete carriers. Thirty grains of quinin sulphate daily is an efficient dosage for the purpose, although this quantity had no effect on the development of the parasites in infected mosquitoes fed on the blood of individuals taking this amount of quinin. The effect of quinin administration is to make the gametes in the tertian form, at least, gradually disappear from the peripheral blood of the patient by the destruction of the young forms, the gametes being phagocyted by splenic and hepatic endothelium; this will occur in from a few days to a few weeks, depending on the severity of the infection. There are never as many gametes in the peripheral blood in the tertian form as in the estivo-autumnal form. In the investigations to determine latent malaria among laborers at work it was found that from 8 to 13 per cent. were carriers of the parasites, chiefly of the tertian variety, or in the proportion of four to one of the estivo-autumnal. It is this latent, untreated malaria in every tropical community which contributes largely to the infection of anophelines when, after the onset of the rainy season, mosquitoes have begun to breed in numbers. Many other points concerning the disease, the parasite and the mosquito, are taken up, the whole making an interesting and valuable contribution to the subject.

MANUAL OF TROPICAL MEDICINE. By Aldo Castellani, M.D., Director of the Clinique for Tropical Diseases, and Albert J. Chalmers, M.D., Registrar and Parasitologist, Corson Medical College, Philadelphia. Price, \$6 net, Pp. 1242, with 372 illustrations. New York: Williams Wood & Co., 1910.

This book represents, according to the authors, the knowledge found actually necessary to acquire and use in their work in tropical medicine. A mere glance at the volume of 1,200 pages shows the wide scope taken by tropical medicine

at the present day. This department of medical science may be said to be based on the agency of animals in the conveyance of disease, and consequently a very large section of the work, covering nearly 400 pages, is devoted to a description of the biologic causes of disease, including animal parasites and disease-carriers and a short chapter on the vegetable parasites, omitting bacteria, which are sufficiently described in other text-books. The animal parasites and carriers are arranged according to their zoologic order, and a very complete description is given. The following section of about 600 pages treats of the diseases of the tropics, including those which are in any way characteristic, chiefly the infections. The authors have, however, not neglected other affections which present any unusual features in tropical countries. Thus we find certain monsters described because these births occur in tropical countries more frequently, according to the authors' experience, than in cooler climates.

Treatment has been described in detail, which adds value to the book, as it may be the only authority which the worker in a tropical climate has at hand. Specific directions for the administration of medicines are given in such diseases as dysentery, ankylostomiasis, malaria, etc.

The work shows great research and presents a mine of valuable information. Its value is much enhanced by the abundant illustrations, numbering 373, besides 14 colored plates. The usefulness of such a work is by no means limited to those practicing in tropical countries, for a large proportion of the subjects treated find examples in temperate climates, as for instance, malaria, plague, amebic dysentery, pellagra, etc., while those more closely confined to tropical regions may be brought unexpectedly to the notice of the American or European physician by returned travelers or soldiers. To the physician who recognizes the need of acquainting himself with tropical diseases this work will present a welcome aid.

DIE ORTHOPÄDIE DES PRAKTISCHEN ARZTES. Von San.-Rat Dr. Georg Möller, Berlin. Paper. Price, 8 marks. Pp. 258, with 151 illustrations. Vienna: Urban & Schwarzenberg, 1910.

This practical little volume of 258 pages is written, as its title indicates, for the express purpose of diffusing among general practitioners knowledge of such later developments and methods in the realm of special practice as they are not only quite competent to understand, but are well able to follow out in practice, once it is brought to their notice in a plain and logical manner. The author covers a rather complete range of orthopedic treatment with necessarily short discussions of etiology. The directions are practical and clear and their execution may be within the range of the general practitioner if he is fairly ingenious. It is interesting to note, however, a conspicuous absence of our practically indispensable Bradford frame in the treatment of Pott's disease, and complete obliviousness of the name of Grattan when mentioning instruments for osteoclasis; nor is it any less surprising to know that the author removes all dressings ten days after a myotomy for correction of torticollis, depending on massage, gymnastics, and similar therapeutic measures to maintain the correction. In the etiology of spondylitis deformans, while mentioning gonorrhea, rheumatism and uric acid, he omits the pyogenic factor so familiar to us in our later experiences. Possibly we are expecting too much in a book of such limited scope; but there is so much in it that is direct and practical that it should be gratefully welcomed by those whom it is specially designed to serve. The mechanical features of the book are good and the illustrations well chosen and instructive.

NURSING IN DISEASES OF THE EYE, EAR, NOSE AND THROAT. By the Committee on Nurses of the Manhattan Eye, Ear and Throat Hospital, New York. Cloth. Price, \$1.50 net. Pp. 281, with 81 illustrations. Philadelphia: W. B. Saunders Co., 1910.

In this book the opening chapters on the germ theory of disease, antiseptics and disinfection of rooms and clothing, sterilization, preparation of operating-room, duties of the nurse at operations, duties in emergencies, feeding and care of infants, etc., do not differ materially from other works on nursing not intended especially for nurses in eye, nose, throat, and ear cases. The anatomic descriptions of the organs and structures included in the scope of the book are sufficiently full and clear for the purposes of the work;

and they are well illustrated; but in the descriptions of diseases and operations or procedures, their application or pertinence to the work of the nurse is not always set out or clearly manifest, although the authors assert that it has been their purpose to keep that relation in mind, as, for instance, in the descriptions of the tuning fork and other diagnostic methods of determining the condition of the hearing apparatus. For the most part, however, such things are avoided, and only such information presented as to give the nurse an intelligent understanding of the duties required of her. It may be questioned by many, however, whether works on nursing giving the general principles would not answer the purpose without requiring a special work for these branches.

SERUMS, VACCINES AND TOXINS IN TREATMENT AND DIAGNOSIS. By W. Cecil Rosanquet, M.D., Assistant Physician to the Charing Cross Hospital and to the Hospital for Consumption and Diseases of the Chest, Brompton, and John W. H. Eyre, M.D., Bacteriologist to Guy's Hospital and in Charge of the Vaccine Department. Second Edition. Cloth. Price, \$2 net. Pp. 362, with illustrations. New York: Funk and Wagnalls Co., 1910.

This is a pocket manual of 360 thin-paper pages. The authors devote 60 pages to a consideration of the general principles of immunity and susceptibility and the relation of specific bodies thereto. They then take up about a score of diseases or syndromes for which serums, vaccines and antitoxins have been advocated. With some of these substances the authors have had experience and have written from that point of view. In connection with most of them, however, they review the literature and give more space to American literature than is usual in English or European books. The book would be more valuable if the authors spoke with more of personal conviction on many points.

The subjects discussed are too new for anyone to write a really satisfying book on them. Certainly views have not crystallized enough for the purposes of a manual of a certain type. There is a field for a book that gathers together references for those who want to know of the subjects treated in this volume and have not the time or the training to go deeply into them. Such a manual as this should be revised at short intervals.

HYGIENE AND PUBLIC HEALTH. By B. Arthur Whitelegge, M.D., late County Medical Officer of Health for the West Riding of Yorkshire, and George Newman, M.D., Lecturer on Public Health at St. Bartholomew's Hospital (University of London). Cloth. Price, \$1.75 net. Pp. 650, with illustrations. New York: Funk and Wagnalls Co., 1910.

The book covers a wider range of subjects than is customary in American books. The terms used occasionally differ from those in use in this country. A good deal of space is occupied by laws and rules, many of which are not adaptable to this country. Nevertheless, in the absence of standards in America, these rules constitute a most valuable part of the book. This is one of the best manuals in any language.

Medicolegal

Validity and Construction of Contract for Medical Treatment for Life; Payment to Be Out of Estate—Licensed Physician of One State Treating Patient Temporarily in Another State

The Supreme Court of Illinois had in *Zeigler vs. Illinois Trust and Savings Bank* (91 N. E. R. 1041) a case wherein it was sought to enforce a contract providing for payment for medical services for life by a patient's estate. The contract stated that the patient had entered into an agreement for professional services to be rendered by the claimant, a physician, at any time or place, during any spell of indisposition to which the patient might be subjected during the remainder of her natural lifetime; that in the event of sickness such methods were to be employed or adopted as seemed best and most expedient; that all medicine or other paraphernalia necessary to the discharge of duties in cases of indisposition were to be provided by the physician; that when the critical moment came, when it was thought that the patient might pass away, the physician might call another physician or physicians as judgment might dictate; and that it was voluntarily contracted to pay for the services thus rendered \$100,000, payable immediately or as soon as possible by the

patient's estate. The contract was made in Chicago, in December, 1899, and re-executed or confirmed in July, 1901, the patient being at the former date about 78 or 79 years of age, and living until August 25, 1904, when she died, in California. Her estate was valued at \$270,000.

The Appellate Court, First District of Illinois, held that the contract was void, as being against sound public policy. But the Supreme Court of the State reversed its judgment and holds otherwise. That this contract did not in any of its expressed provisions violate the constitution or any statute of the state, the Supreme Court says, did not admit of argument. The making of such a contract is not prohibited either by the express terms or any fair implication of the constitution or of any statute of the state. Neither does the court deem it to be contrary to the judicial decisions of the state. The laws and the public policy of the state permit and require that utmost freedom of contracting between competent parties, and it is only when a contract expressly contravenes the law or the known public policy of the state that courts will hold it void.

It was urged that this contract was void chiefly for the reason that it furnished an incentive to the physician to shorten the life of the patient by neglect or improper treatment or by the commission of the crime of murder. Each argument made in support of that contention involved a breach of the contract, and was not founded on the performance of it. It could not be seriously contended but that, in order to comply with the terms of this contract and be entitled to receive the benefits of it, the physician was bound to give the patient the best treatment within his power and skill and to prolong her life as long as possible. Should he fail to do this, either through neglect, by willfully treating her in an improper manner or by directly causing her death, he would be unable to recover on the contract.

There can be no doubt that a contract to commit murder or any other crime, or a contract to give a reward to one for the commission of a crime, is void, as against public policy. But this contract did not contemplate the commission of a crime or the doing of anything which was unlawful or contrary to good public morals. Even if it be conceded that the contract, under its terms, offered some incentive to the physician to commit a crime, that would not necessarily render it void. There are numerous decisions involving contracts entered into whereby one party has agreed that on his death his property, or certain specific portions of it, shall go to and become the property of the other party for considerations named, being usually the caring for and maintaining of the grantor during his or her lifetime by the other party, or whereby one party conveyed his property to the other for the consideration of the care, maintenance and support of the grantor during the remainder of his or her natural life, and these contracts have universally been held to be valid and binding. In every such case, the incentive to hasten the death of the grantor was present to the same extent as in this case.

The contention that this contract was void for the reason that it was a wagering contract was also not well founded. As this court views it, it had none of the elements which would bring it within the designation of a wagering contract. There was a sufficient consideration moving between the parties to support the contract.

The interposition of the further defense that the fiduciary relation of physician and patient having existed between the parties at the time of the execution of the original and supplemental contracts they were presumptively fraudulent and prima facie void, merely made it necessary for the physician to show, by a preponderance of the evidence, that the patient entered into this contract voluntarily, deliberately and advisedly, knowing its nature and effect, and that her consent was not obtained by reason of the power and influence to which the relationship between them might be supposed to give rise.

About four months before her death, the patient, accompanied by the physician, went to California, where she died. The physician accompanied her and attended her there, under a special arrangement made with her. It was conceded that

he was not licensed to practice medicine in the state of California, and it was insisted that for that reason he was not entitled to recover anything for his services performed in the state of California, whether rendered pursuant to a contract or otherwise. But the physician, when in attendance on the patient, under the terms of his contract, while she was sojourning temporarily in the state of California, was licensed to practice medicine in the state of Illinois, and, so far as the determination of the questions involved here was concerned, it was immaterial whether he had authority to practice medicine in the state of California, or whether the medical attention he gave to this patient while in the state of California was in violation of the laws of that state. He was not engaged in the general practice of medicine in California, but was simply in attendance on his patient, who was a resident of Illinois, while she was temporarily in California.

Then, it was contended that the physician violated the terms of his contract in refusing to accompany the patient to California in 1903, and for that reason was not entitled to recover on the contract. But a fair and reasonable interpretation of the contract would not require him to accompany her to any place she might see fit to go temporarily, for the purpose of treating her professionally, but only bound him to treat her at her permanent place of abode. That the parties so understood the terms of the contract was evidenced by the fact that when he did accompany her to California, in 1904, it was under a special arrangement whereby he was to receive extra compensation for doing so.

From a consideration of the whole record the Supreme Court is of the opinion that the contract was a valid and binding one, and that the physician, having fully performed it on his part, was entitled to an affirmation of the judgment of the circuit court in his favor.

License Need Be Filed in County of Residence Only

The Supreme Court of Washington says, in *State vs. Dechmann* (107 Pac. R. 858), that, in prosecutions under the statute of that state for practicing medicine without a license, evidence that the defendant has failed to file a license with the county clerk, as required, is *prima facie* evidence that he is not a legally licensed practitioner. But, under the law, the failure to file the license in a county other than the county in which the defendant resides will not be proof of the violation of the law or the commission of the crime charged, because it is not one of the requirements of the statute that the practitioner shall file the license in counties other than the one in which he resides, even though he may be called to another county for the purpose of practicing his profession temporarily. Hence a conviction cannot be sustained by evidence showing merely that the defendant practiced medicine in a given county, and that no license had been filed in such county, without any proof that he was at the time a resident of the county.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

September 3

- 1 Circulation as a Factor which Determines the Effects of Microbic Invasion. A. Haig, London.
- 2 Open Questions in Tuberculosis. T. E. Satterthwaite, New York.
- 3 Special Dangers Associated with Operations on the Biliary Passages and Their Avoidance. B. T. Tilton, New York.
- 4 Use of Day Camps and Night Camps in the Home Treatment of Tuberculosis. N. G. Sermour, New York.
- 5 *Simplified Method for the Transfusion of Blood. A. M. Fauntleroy, U. S. Navy.
- 6 Juvenile Form of General Paresis, with Report of a Case. J. V. May, Binghamton, N. Y.
- 7 Anemia: Its Pathogeny and Hypodermic Treatment. G. K. Dickinson, Jersey City.
- 8 Dengue. N. Ardali, Beirut, Syria.
- 9 Measles and German Measles: Characteristics of the Present Outbreak in Philadelphia. M. Ostheimer, Philadelphia.

5. Simplified Method for the Transfusion of Blood.—This method devised by Fauntleroy consists in a vein-to-vein anastomosis by means of a curved glass tube, $\frac{1}{8}$ inch inner diameter and 3 inches in a straight line from tip to tip. Each end of the tube is slightly flanged to prevent slipping out of vein after ligature is tied. The veins at the elbow are the ones selected for use in both donor and recipient and, depending on the position occupied by the individuals, a full curved or an S-shaped tube is used, the former being known as the "hand-to-shoulder" tube and the latter as the "shoulder-to-shoulder" tube. In other words, when the transfusion is done with the donor and the recipient lying in the same direction, with their shoulders touching, or nearly so, the S-shaped or "shoulder-to-shoulder" tube is used, as the direction of the venous current in this position is the same in each individual. If for any reason the reverse position is selected, such as where the head of the donor is near the lower extremity of the recipient and where the hands of each are near the other's shoulder, the U-shaped or "hand-to-shoulder" tube is used as, in order to effect an anastomosis, the venous current from the donor has to be switched around into the venous current of the recipient which is running in the opposite direction. In making this tube, which is curved to represent the arc of a circle 3 inches in diameter, one arm extends below the semi-circle $\frac{3}{4}$ inch, and it is this end of the tube which is inserted into the recipient's vein.

New York Medical Journal

September 3

- 10 *Treatment of Syphilis with Ehrlich's "606"—Dioxydiamidoarsenobenzol. W. Weichselmann, Berlin, Germany.
- 11 Psychopathic Wards at Bellevue; Their Functions and Alms. M. S. Gregory, New York.
- 12 Evolution of Hygiene and Sanitation. J. J. Walsh, New York.
- 13 Twilight Talks by the Doctor. G. F. Butler, Chicago.
- 14 Treatment of Epilepsy with Hypodermic Injections of Rattlesnake Venom. R. H. Spangler, Philadelphia.
- 15 Ichthyol. R. H. M. Dawbarn, New York.
- 16 Causes of Failures in Adenoidectomies. J. V. White, Detroit.
- 17 Practical Suggestions for Facilitation of an Earlier Diagnosis in Tuberculosis. F. M. Pottenger, Monrovia, Cal.
- 18 Diagnosis of Tuberculosis in Doubtful Cases. G. Wilson, Baltimore.
- 19 Alcoholic Amnesia with Clinical Report of a Case. N. S. Yawger, Philadelphia.

10. Treatment of Syphilis with Dioxydiamidoarsenobenzol. — So far, Weichselmann has treated over 600 cases of syphilis with this remedy. He says that the erosive chancres become clean after from 12 to 24 hours and heal rapidly; in pronounced sclerosis the cleaning process is of the same rapidity, but absorption takes longer. In 4 cases there appeared after the healing of the primary lesion an exanthem which healed spontaneously in 2 cases in which it appeared on the first and seventh day after the injection; the 2 other patients received a second injection. Mucous patches of the mouth heal in from 24 to 48 hours, even if the patient is an inveterate smoker. The roseola disappears in a few days, as do also the malign ulcerous syphilides, the rupia, the watery papules, the small papulous syphilides, which are otherwise so pertinacious, and the gummata. Slower is the disappearance of the large papulous syphilides, and for these a second injection becomes sometimes necessary. Favorable are the effects on syphilis of the bones; especially the night pains of the bones disappear as by magic. In view of experience with other arsenical preparations Weichselmann sees that every patient has his eyes examined by a specialist before giving the injection. In cases in which there are changes in the optic nerve—a circumstance which frequently occurs—he has not given an injection. Visceral lues also shows quick recovery, especially syphilis of the testicles and of the brain (epileptoid attacks). Icterus which has existed for a considerable time disappears in 10 days. Syphilitic growths of the larynx which had produced such severe dyspnea and stridor that the case was received as one for tracheotomy disappeared quickly and remained only as solid infiltrations, which were treated 4 weeks later with a second injection; and edema of the larynx, of which he was very much afraid at first, did not occur. Two patients with tumors from cerebral lues stood the injections well, although the symptoms were very severe. The same was the case with 2 patients

who had only lately suffered a luetic apoplexy, and a patient with a luetic apoplexy a few weeks old; these 3 patients plainly showed improvement. As to the parasyphilitic diseases, Wechselsmann has not observed clear results in cases of progressive paralysis, although he is of the opinion of Alt, that a trial should be made in early cases. At all events, a favorable influence will be produced on the symptoms of lassitude, depression, and abnormal irritability, which occur early and quite threateningly. In tabes also a quick improvement has been plainly noticeable. Altogether, the tabetics are very well satisfied. Some symptoms seem to improve in some cases: for example, the girdle sensation; the dull headache which had existed for years; very severe intercostal neuralgias: in one case weakness of the muscles of deglutition, which had existed for a number of years and which produced difficulty in swallowing dry nourishment. Diminished potentia cœundi was in one case so improved that daily intercourse was accomplished. A debility of the sphincter vesicæ which had existed for 8 years, and on account of which diurnal incontinence occurred, while on a sudden impulse immediate evacuation of the bladder took place, disappeared a few days after the injection. In 2 cases an improvement of the rigor pupillæ was shown, also an improvement of the disturbances of sensibility. Furthermore, some patients state that the gait is improved. In advanced cases, Wechselsmann says that one cannot hope for success, but we must not forget that there exist in paralysis and especially in tabes, besides the process which cannot be repaired, such as scleroses of certain systems, syphilitic lesions, especially of single vessels, gummata, meningitic growths, particularly in the atypical forms of tabes, pseudotabes, in which an improvement is possible. It is evident that such an improvement is of the greatest import for the patient even if the improvement occurs in small, circumscribed locations in an organ, as, for example, the spinal column, where so many important nerve courses are crowded together in the smallest space. Several observers, such as Truffi, Pazini, and especially Wechselsmann's assistant, Dr. Siesskind, have proved that the spirochetes disappear from papules and primary lesions, in some cases after 24 hours, while in other cases they still exist after days, even if they are swollen and very little movable. Iversen has lately made similar observations in preparations of glands.

The Wassermann reaction usually disappears, as has been stated by Alt, and Lange has found that a time from 8 to 40 days is necessary to produce this effect, according to the primary severity of the reaction.

Wechselsmann has not observed bad after effects of importance, but it has been found that otherwise light infections, such as those with coryza or angina, even if they appear on the ninth day, are accompanied with very high fever, with a temperature from 104 to 105.8 F. A patient with a weak heart should therefore be carefully guarded; besides, in such cases the injection seems not to be without danger. Otherwise, the influence of the remedy appears generally to be of an exciting and invigorating nature. It can therefore be given with benefit to very miserable patients, as, for example, to the tuberculous, in contradistinction to mercury. Nor has he observed widespread and severe recurrences, such as occur after mercurial treatment. Isolated cases have remained refractory and made a second injection necessary, which was then successful as in cases of recurrence. Although, naturally, it cannot be positively stated whether it will be possible to cure syphilis permanently, Wechselsmann hopes that we shall be able to do this in certain cases.

Boston Medical and Surgical Journal

September 1

- 20 *Results of 168 Operations for Hernia. C. L. Scudder, Boston.
- 21 Educational Methods in the Antituberculosis Campaign. J. B. Hawes, Boston.
- 22 Personal Relation of the Physician to his Patients. O. H. Howe, Cohasset, Mas.
- 23 Necessity of the General Practice of Medicine as a Preliminary Training for Those Engaged in Special Work. C. M. Cobb, Boston.

20. Results Following Operation for Hernia.—Scudder reports 244 operations done by him for hernia of all kinds. There have been no deaths following operation in uncomplicated cases.

The only deaths were in the strangulated group. There were 25 patients with strangulated hernia; 10 of these died; 3 hernias were inguinal, 1 hernia was ventral, 1 was femoral, and 5 of the 10 fatal cases were umbilical. These 10 deaths make a mortality of 40 per cent in the strangulated group.

Scudder succeeded in obtaining the present condition of 158 of these cases. Of the 158 operations, 143 wounds are solid and without recurrence. That is, 90.6 per cent. of the patients operated on in whom the returns were known were cured. There were 165 patients with inguinal hernia; 53 did not report; in 3 strangulated cases the patients died; 10 of the 109 in whom the end-result is known recurred. That is, 90.9 per cent. of the patients in the inguinal group were known to be cured.

There were 27 cases of ventral hernia; 11 patients did not report; in 1 the hernia recurred; 1 died of strangulation; 14 of the patients in whom the end-result was known were all right. That is, in 93.33 per cent. of the cases reported the patients were cured.

There were 13 umbilical cases. There was no report from 3 cases. Of the remainder, 5 patients died of strangulation; 5 had no recurrence.

There were 5 epigastric hernias. All of these patients reported, and each is well.

There were 2 congenital cases, in each of which the patient died.

It will thus be seen after a careful analysis of the returns from these cases of hernia that there are comparatively few recurrences following the procedures employed. This investigation into the condition of these hernia cases was undertaken primarily to determine whether any material change might be necessary in the technic of the operation to secure better results. In analyzing the 10 cases in which recurrence is known to have occurred in the inguinal hernia group, conditions were present which precluded, perhaps, the possibility of cure. In certain (2) of these cases a chronic cough which had persisted for years contributed to the recurrence. One case was a strangulated case, and it is very likely that the operation was done with such haste on account of the condition of the patient that the technic was not so satisfactory as it might have been. In the other 7 cases there is no explanation apparent for the recurrence. Scudder thinks it fair to say that the Bassini operation for inguinal hernia is most satisfactory and that if carefully performed gives at least a cure in 90 per cent. of the cases and possibly in 95 per cent. (Coley). There was no mortality attending these operations for hernia. In certain of the strangulated cases the patients recovered; in 10 strangulated cases the patients died.

Lancet-Clinic, Cincinnati

August 27

- 24 Surgery of Aneurism of Aortic Arch and Its Branches. B. M. Ricketts, Cincinnati.
- 25 Lacerations of Cervix and Perineum. D. D. Deneen, Cincinnati.

September 3

- 26 The Owen Bill for the Establishment of a Federal Department of Health and Its Opponents. S. A. Knopf, New York.
- 27 Myasthenia Gravis. I. O. Allen, Richmond, Ind.
- 28 Consecutive Examinations of Life-Insurance Risks. E. O. Kline.

American Journal of the Medical Sciences, Philadelphia

September

- 29 *Therapeutic Action of Digitalis. V. E. Henderson, Toronto, Canada.
- 30 *Digestive or Alimentary Hypersecretion of Gastric Juice. J. Friedenwald, Baltimore, Md.
- 31 Chronic Pancreatitis. J. Sailer, Philadelphia.
- 32 *Congenital Heart-Block Occurring in a Father and Two Children, One an Infant. Z. M. K. Fulton, C. F. Judson and G. W. Norris, Philadelphia.
- 33 *Duration of Pregnancy, with a New Rule for Its Estimation. E. McDonald, New York.
- 34 Further Studies of Sarcoma of Bone. L. Buerger, New York.
- 35 Cases Illustrating the Origin of Hysterical and Pseudo-hysterical Symptoms. T. A. Williams, Washington, D. C.
- 36 *Psychasthenic Attacks Resembling Epilepsy. T. J. Orblison, Los Angeles.
- 37 Fatality Following the Removal of Tonsils and an Adenoid Growth. F. R. Packard, Philadelphia.
- 38 Metabolism after Parathyroidectomy. J. V. Cooke, New York.
- 39 Electrocardiogram in Clinical Medicine. W. B. James and H. B. Williams, New York.
- 40 *Effects of Injection of Killed Streptococci. G. H. Weaver, Chicago.

29. **Therapeutic Action of Digitalis.**—Henderson is convinced that Fraenkel's method of intravenous administration of strophanthin puts into the hands of the physician a valuable means of overcoming cardiac weakness promptly. The mode of application is so certain, its effect so striking, that it might almost awaken suspicion that such drastic action might damage the heart. It might be felt that, in order to maintain the circulation when the cardiac rate is so suddenly decreased, a very great increase of work must be done by the heart. This is certainly true for each individual beat, but if one takes the total amount of work done during a unit of time, this is by no means necessarily the case. We must remember, however, that even if the heart is doing a greater amount of work in each interval of time, we have increased its ability to do work owing to the increase in the contractibility of the muscle cells, and have also decreased the danger of cardiac failure by increasing the tone of the heart muscle. We have also probably improved the nutrient conditions of the muscle, as digitalis increases the flow through the coronary vessels.

30. **Hypersecretion of Gastric Juice.**—Friedenwald's observations extend over a series of 14 cases. Of these, there are 12 males and 2 females, ages varying between 18 and 64 years. The symptoms are largely those of gastric neurasthenia, consisting of fullness, pressure, distention, eructations and pains in the region of the stomach, together with occasional attacks of nausea and vomiting, rarely of heartburn, and usually with extreme constipation. In all cases general nervous symptoms are manifested, as lassitude, headache, insomnia, irritability and depression. A marked feature of the cases is the variability of symptoms; periods of discomfort alternating with unaccountable periods of well-being, the periods of discomfort apparently often being induced by nervous influences, such as shock or anxiety. A symptom present in all instances is the emaciation; a loss of weight of from 15 to 32 pounds is observed in his cases. This is especially striking, as the appetite and amount of nourishment consumed were not abnormally diminished in any instance. Localized areas tender to pressure were observed in only 2 cases, but were inconstant. A marked succussion sound was detected in all cases long after meals, and even after small meals. Three of the cases were complicated with an enteroptosis; in none was the stomach dilated. The following examinations were made in all instances: (1) Extraction and examination of the gastric contents one hour after taking an Ewald-Boas test breakfast; (2) an examination of the gastric contents made one hour after taking a dry test breakfast; and (3) an attempt was made to extract and examine the contents from the fasting stomach. At least 3 examinations were made in all instances. In these 14 patients, 8 presented hyperacidity, 5 normal acidity ranged between 94 and 70; free hydrochloric acid between 74 and 44; in the normal cases, the total acidity varied between 64 and 42; free hydrochloric acid between 42 and 32; in the subacidity case the total acidity was 28; free hydrochloric acid. In the hyperacidity cases there was a marked interference with the amyolysis with the formation of amidulin. In the cases with a normal percentage of acid erythrodestrin was formed; while in the subacidity case, achroodestrin was obtained. With the dry test meal 2 of the patients presented hyperacidity, 4 normal acidity, and one subacidity. In the hyperacidity cases the total acidity varied between 85 and 80, the free hydrochloric acid between 68 and 72. In the normal cases the total acidity ranged between 40 and 58, the free hydrochloric acid between 34 and 46; and in the subacidity case the total acidity was 20; free hydrochloric acid, 5. In the hyperacidity cases there was a formation of amidulin; in the cases with a normal percentage of acid, erythrodestrin; in the subacidity case, achroodestrin. The extraction of contents from the fasting stomach was attempted in all instances. In not one of the cases could more than from 10 to 15 c.c. of contents be obtained. The treatment is largely the treatment of nervous dyspepsia. As most patients have lost much flesh and strength, the best results are obtained by means of the rest cure. In 5 of Friedenwald's cases in which this form of treatment was undertaken, excellent results were obtained. Ordinarily

the diet should consist of 3 meals a day, as all food ingested has a tendency to increase the gastric secretion. The nourishment should contain an excess of proteins and fats and a small proportion of carbohydrates. Of the proteins, milk, eggs and fish are to be preferred, as they do not tend to increase the gastric secretion as much as meat. Fats decrease the acid of the gastric secretion and are therefore highly recommended; they should be given as butter, cheese, cream and olive oil. The carbohydrates should only be allowed in the most digestible forms, as vegetables in puree form, dextrinized flour, and stale bread and toast. The quantity of fluids ingested need not be decreased in this affection. Large quantities of milk and alkaline waters may be taken with benefit. Such food as bouillon, meat extracts, coffee, tea and alcohol, as well as all acid and spiced foods, should be avoided. The alkalies, with or without belladonna or its preparations are often serviceable in the treatment of this disorder. Such measures as hydropathic procedures, massage, etc., which have a tendency to build up and strengthen the nervous system, are of great service in the treatment of this condition.

32. **Congenital Heart-Block.**—The hypothesis which the authors formulate to explain their cases is that they are dealing with a congenital physiologic and perhaps anatomic abnormality in the auriculoventricular bundle or its blood supply, by virtue of which conductivity is restored more slowly than normally.

33. **Duration of Pregnancy.**—The rule employed by McDonald is as follows. The duration of pregnancy in lunar months is equal to the height of the uterus in centimeters divided by 3.5. It depends on the more or less regular growth of the uterus of 3.5 cm. each month of 4 weeks, and is very exact after the sixth month. The measurement is taken with the patient lying flat, and one end of the tape is placed at the upper border of the symphysis, while the other is held by the thumb into the palm of the hand. The fingers of the upper hand are held at right angles to the fundus of the uterus, and the tape follows the contour of the uterus save at the last dip. Multiparae with lax abdominal walls and thin uteri should be supported at the side, so as to bring the occipitococcygeal axis of the pelvis into the long axis of the mother's body. McDonald says that this method gives satisfactory results and is the most exact means of estimation of the duration of pregnancy. It is strictly an estimation of the size of the fetus; for when the uterus arrives at the height

35

of 35 cm., or full term ($= 10$ lunar months), the fetus

3.5

is of a weight of 3,300 gm., or average size, as is shown by the measurement in a former paper. Thus an average-sized baby usually comes at the average period of pregnancy—hence the rule. After the sixth month this rule is extraordinarily exact, he asserts, and is most useful in determining the date of labor and the size of the fetus, when the date of the last menstruation has been forgotten. It has been in use by McDonald since 1904, and he has had good reports of it from many obstetricians. It may be said that 35 cm. is the usual height of the uterus at full term with a fetus of 3,300 gm. For every centimeter of height above this measurement approximately 200 gm. should be added to the weight of the fetus. Thus, a uterus measuring 37 cm. would contain a fetus weighing 3,700 gm. The measurements are more exact below 35 centimeters than above that height. The so-called sinking of the fetus in the last 2 weeks of pregnancy causes but little error in the measurement, as the head, when the patient is recumbent, rides upward on the pelvic bones and the sinking is not a factor. Sinking in his experience is not common in primiparae, and its supposed presence is often due to the stretching of the abdominal muscles and not to descent of the head into the pelvis. The fundus thus comes lower in the erect position, and no diminution of the fundal height is noted in the recumbent. Sinking does, however, in multiparae sometimes complicate the measurement, but not often. Hydramnios also causes but small error, as the excess of liquid does not affect the fundus, but the body of the uterus

leaving the height of the fundus to be determined by the occipitococcygeal measurement and the size of the fetus. The rule gives the most exact means at hand of prognosticating the date of labor. Thus, if the fundus measures 26 centimeters from the symphysis, the duration of pregnancy is 26 divided by 3.5, or 7 $\frac{3}{7}$ lunar months, and the patient has 2 $\frac{4}{7}$ lunar months to go to term, or 10 weeks and 2 days. This rule, combined with the estimation of pregnancy by reckoning from the last menstruation, gives a fairly exact determination of the probable date of labor.

36. Psychasthenic Attacks.—All Orbison's patients were females with an asthenic mental condition that is unquestionable. Ignoring the attacks themselves, every case would be diagnosed psychasthenia. All the patients feared epilepsy or insanity, and the assurance that these fears were groundless was a great boon. The treatment consisted in mental and physical hygiene, together with rest or exercise, as seemed to be indicated.

40. Effects of Injections of Killed Streptococci.—Weaver says that destruction of streptococci within the body is accomplished through phagocytosis, for which opsonin is essential. In estimating the ability of the individual to cope with streptococcic infections, the leukocytes as well as the serum must be taken into account. Killed streptococci when injected into an animal may raise its resistance to living, virulent streptococci. It is desirable that injections of killed streptococci as a prophylactic against scarlet fever be tried under conditions favorable for control. Heating interferes with the antigenic properties of streptococci. These properties are preserved when streptococci are killed by a strong galactose solution. Injections of galactose-killed streptococci early in the course of scarlet fever do not prevent later streptococci complications. Injections of galactose-killed streptococci in cases of acute erysipelas and in the acute stage of streptococcic complications of contagious diseases appear not to influence the course of the disease. In subacute and chronic erysipelas and in streptococcic complications of contagious diseases which have become chronic, injections of galactose-killed streptococci are sometimes followed by favorable results, and at other times no appreciable effect is seen. Great caution must be observed in ascribing improvement in these cases to the injections.

Laryngoscope, St. Louis

August

- 41 The Nose and Accessory Sinuses. H. L. Swain, New Haven, Conn.
- 42 Knowledge and Treatment of the Upper Respiratory Tract: The Oropharynx and the Nasopharynx. W. K. Simpson, New York.
- 43 Knowledge and Treatment of the Larynx, Trachea and Bronchi. S. Yankauer, New York.
- 44 Pediatrics and Otiatrics. E. Gruening, New York.
- 45 Brain Abscess Formations. S. M. Smith, Philadelphia.
- 46 A Safe Intranasal Method of Opening the Frontal Sinus. J. A. Thompson, Cincinnati.
- 47 The Exanthemata: Their Causal Relation to Diseases of the Ear. J. J. Pattee, Pueblo, Colo.

Journal of Infectious Diseases, Chicago

August

- 48 *The Mills-Reincke Phenomenon and Hazen's Theorem Concerning the Decrease in Mortality from Diseases other than Typhoid Fever Following the Purification of Public Water Supplies. W. T. Sedgwick, Boston, and J. S. MacNutt, Orange, N. J.
- 49 *Physiology of Anaphylactic Shock in the Dog. R. M. Pearce and A. B. Eisenbrey, New York.
- 50 *Influence of Chloral Hydrate on Serum Anaphylaxis. E. J. Banzhaf and L. W. Famulener, New York.
- 51 *Inhibition, Attenuation and Rejuvenation of *Bacillus Coli*. F. E. Hale and T. W. Melia, Brooklyn, N. Y.
- 52 *A Hemophilic Bacillus Found in Urinary Infections. D. J. Davis, Chicago.

48. Mortality Decrease Following Water Purification.—The authors record in great detail the results of their observations which confirmed the findings of Mills and Reincke that the mortality from all diseases—not only typhoid—decreased appreciably as the result of water purification.

49. Anaphylactic Shock in the Dog.—These observations show that anaphylaxis in the dog is characterized subjectively by a sudden and persistent fall in blood pressure followed by objective symptoms referable to cerebral anemia.

Exsanguination and transfusion experiments demonstrate that the disturbance is due to a reaction in the fixed cells and not to changes occurring primarily or secondarily in the circulating blood. Experiments in which the peripheral and central vasomotor mechanisms have been separated by various methods (section, decapitation, destruction of the cord, and isolated circulation) show that the chief influence is exerted on the peripheral vasomotor system. Pharmacologic experiments point to an influence on the nerve endings rather than to one on the muscle of the vessels.

50. Influence of Chloral Hydrate on Serum Anaphylaxis.—In a preliminary communication Banzhaf and Famulener stated that they believed that with improved technique in the dosage of chloral hydrate it would be possible to protect 90 per cent. of all fully sensitized guinea-pigs. Now, however, they have come to the conclusion that, if the smallest dose of serum which will just kill any animal of a given series of sensitized guinea-pigs regularly, be injected into the remainder of the animals of the same series of sensitized guinea-pigs, when properly under the influence of chloral hydrate, protection will be afforded in practically all cases.

51. Studies of *Bacillus Coli*.—There has been much discussion and uncertainty as to the delicacy and relative value of dextrose broth and lactose bile in testing water of fairly good quality. The present investigation was undertaken by Hale and Melia with a view to throwing light on this subject. They found that the bile salts in lactose bile cause an appreciable degree of inhibition in the development of *B. coli*. This inhibition increases with attenuation. Rejuvenation in suitable media, followed by transplanting to lactose bile, will sometimes prove the presence of *B. coli*, usually attenuated, not shown by the lactose bile in direct tests. In actual practice, covering hundreds of samples of Manhattan and Brooklyn waters, the lactose bile, made with the addition of 1 per cent. peptone, has been shown practically to equal the results obtained by rejuvenation in dextrose broth, made with Liebig's extract, followed by transplanting to lactose bile. The authors hold that if dextrose broth is continued in use, it should be made with fresh beef infusion, since it is then more delicate than when made with Liebig's extract. The formula test is of but little practical value and transplantation to lactose bile should be done as soon as gas appears. Gas formation in lactose bile after transplantation from the plain broth or dextrose broth is not always certain, even when *B. coli* is present, on account of interfering growths in the original medium. Lactose bile gives more reliable presumptive tests for *B. coli* than any other known medium, including asculin broth. Other species of bacteria cause much less interference with gas formation of *B. coli* in lactose bile than in any other media. To rejuvenate and transplant seems too laborious and uncertain in routine work. The information gained assists more especially in interpreting the results obtained with lactose bile. Lactose bile makes a distinction between recent and distant contamination, hence better evidence of the actual relative sanitary quality of a water. The use of lactose bile as a step in the separation of *B. typhosus* from water adds yet weightier reasons for its direct employment in the examination of water.

52. Hemophilic Bacillus in Urinary Infections.—In a series of cases of urinary infections, blood media was used by Davis in the routine examination of the urine and other material from the urinary tract with the result that in 3 cases an organism was found which apparently can be cultivated only by this method. The organism is a small non-motile, Gram-negative bacillus whose size varies considerably, but is usually about that of the influenza bacillus. It stains readily with ordinary dyes and is non-acid and non-alcohol fast. With methylen-blue it often stains unevenly, sometimes more deeply at the ends, and again fairly distinct granules may be made out so that it looks not unlike very minute diphtheria bacilli. There is no tendency to form threads or chains, and a characteristic grouping has been made out, though it is common to see the organisms both from urine and from cultures arranged in small irregular clumps consisting of several bacilli. In the urinary sediment they may be seen

clustered about the pus cells, probably having been thus carried in the process of sedimentation. They occur both within and without the leukocytes and at times seem to adhere to epithelial cells. The bacillus does not form spores and does not possess a capsule. Two of the patients had pyuria and the third gave a history of urinary infection some time previously. Two had joint trouble, but there was no evidence to indicate a causal relationship between the bacillus and the joint affection. Davis believes that this bacillus may not be rare and that it has been overlooked because of its hemophilic property.

Medical Fortnightly, St. Louis

August 10

- 53 Cretinism, Juvenile and Adult Myxedema; Exophthalmic and Simple Goiter. H. E. Jones, Roanoke, Va.
- 54 A Crux Medicorum. T. G. Stephenn, Sidney, Iowa.

Journal of the Missouri State Medical Association, St. Louis

August

- 55 Selections from a Lantern Demonstration of Normal and Pathologic Specimens of the Ear. L. K. Guggenheim.
- 56 What Is the Best Treatment for Acute Spreading Peritonitis? H. S. Crossen.
- 57 Recognition of Lung Tuberculosis. O. H. Brown.
- 58 Clinical Deductions in the Study of Tuberculosis. W. Porter.
- 59 Malaria in Infancy and Childhood. J. H. Timberman.
- 60 What Should the County Society Do with the Advertising Doctor? B. B. Parrish, Kirksville.
- 61 Cutaneous Tuberculin Reaction in Children. F. C. Neff, Kansas City.
- 62 Manner of Postgraduate Teaching of Neurology in America. R. E. Castelow, Kansas City.

56. Acute Spreading Peritonitis.—The combination treatment for acute spreading peritonitis, which to Crossen seems best, is as follows: 1. Withhold all food and cathartics by mouth and empty the stomach with a stomach tube. 2. Drain the infected areas with the least possible intraperitoneal disturbance. 3. The Fowler posture. 4. Proctoclysis. 5. Nourishment by rectum.

57. Recognition of Lung Tuberculosis.—Brown says that of all cases of lung tuberculosis which show evidence of active processes, between 95 and 100 per cent. of them can be recognized by the simple methods of physical examination which may be found in any text-book on diagnosis. When possible the conclusions should be supported by laboratory tests.

60. The Advertising Doctor.—Parrish is in favor of educating the public thoroughly in regard to the code of ethics, as it will have a wholesome effect on the profession and at the same time place the profession in a better light before the public.

Journal of Ophthalmology and Oto-Laryngology, Chicago

August

- 63 Staphylococcus and Streptococcus Vaccines in Eye Diseases. W. A. Mann, Chicago.
- 64 Surgical Treatment of Trachoma. C. S. Ayres, Cincinnati.
- 65 The Septal Spur and its Removal. F. G. Stubbs, Chicago.

Northwest Medicine, Seattle

August

- 66 Rational Procedures in the Practice of Medicine. H. A. Hare, Philadelphia.
- 67 Duties of the Physician of To-day. W. D. Kirkpatrick, Bellingham, Wash.
- 68 Tuberculosis Immunity. R. C. Matson, Portland, Ore.
- 69 Congenital Hydronephrosis, with Report of Case. C. Smith, Spokane.
- 70 General Considerations in Diagnosis of Infantile Diseases. L. W. Jones, Tacoma, Wash.

Journal of Abnormal Psychology, Boston

August-September

- 71 Psycho-Analysis of a Case of Sensory Automatism. I. H. Coriat, Boston.
- 72 Hysteria. H. W. Miller, Washington.
- 73 Apropos of Dr. Miller's Case of Lyssophobia. T. A. Williams, Washington, D. C.

The Military Surgeon, Washington

September

- 74 Ready Means of Increasing the Marching Radius of the Soldier. W. W. Reno, U. S. Army.
- 75 Venereal Diseases in the United States Army—Their Prevention and Treatment. L. M. Maus, U. S. Army.
- 76 Prevalence and Prophylaxis of Venereal Diseases at One Military Post. C. F. Morse, U. S. Army.
- 77 Rules for the Personal Hygiene of the Soldier. J. H. Weaver, National Guard Pennsylvania.
- 78 Feeding of Infants in the Tropics. H. Page, U. S. Army.

- 79 The Establishment of a Proficient Volunteer Medical Corps for the Army and Navy. A Problem of the Future. H. Hays, New York City.
- 80 Syphilis and Its Treatment. M. H. Simons, U. S. Army.
- 81 Case of Balantidium Dysentery. L. C. Duncan, U. S. Army.
- 82 Diseases of the Heart Among Applicants for Enlistment. S. M. DeLoffre, U. S. Army.
- 83 Case of Intestinal Bilharziosis. T. W. Jackson, U. S. Army.
- 84 Case of Yaws. J. E. Siler, U. S. Army.

85. Prevention of Venereal Diseases.—Observation and experimentation have convinced Maus, he declares, that calomel alone (25 per cent), in connection with animal fats, benzoated lard (40 per cent.), and refined suet (30 per cent.), is all that is required to prevent infection from either of the 3 venereal diseases (syphilis, gonorrhea or chancroids), if properly used within reasonable time following sexual contact. The calomel is introduced into the urethra and massage employed for a few moments.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

August

- 85 Further Uses of Solution of Calcium Crocoate in Medicine. L. Koltipski, Washington, D. C.
- 86 Skin Inunction as a Therapeutic Measure. I. F. Filck, Philadelphia.
- 87 Treatment of Hypertension Resulting from Alcoholic and other Excesses by D'Arsonvalization. W. B. Snow, New York City.
- 88 Red Indican Urine: Its Clinical Significance; the Metchnikoff Theory. A. Bassler, New York City.

88. Red Indican Urine.—From March 1, 1909, to March 1, 1910, Bassler examined 1,371 specimens of urine from patients coming under observation for the first time. Of these, an increased conjugate sulphate partition, represented in the 3 chromogens, was noted 427 times; 171 showed urochrome alone; 67, indican alone; 166 showed urochrome and indican combined; 20, blue and red indican combined, and 3 urohematin alone. The urinary test which he uses is a modification of the Jaffe test, consisting of the addition of an equal part of concentrated hydrochloric acid in the urine (about 5 c.c. of each), then about 2 c.c. of peroxid of hydrogen and about 3 c.c. of chloroform, shaking well, and then centrifuging the whole. This gives the blue and red indican in the chloroform and the urochrome in the supernatant fluid (the red indican and urochrome both being rose-colored). Bassler thinks urohematin is most probably an indoxyl derivative having a clinical significance similar to indican. It is more rarely observed alone than indican, although a purplish color which represents both the blue and the red is a most frequent finding. Red indican urines are often found in extensive disease of the small intestine allowing of resorption, in gastric cancer, and in acute and chronic peritonitis. Like blue indican, it is met with also in ileus and intestinal obstruction, though not so commonly in the malignant and organic strictured states, and in chronic diarrhea. It is present in normal urine in small amounts, and may be demonstrated by shaking the urine with chloroform (about 4 to 1 parts by volume) and decanting it after agitation during several days, when the addition of a drop of concentrated hydrochloric acid to the chloroform will cause the appearance of a rose color—the deeper the color, the greater is the amount of chromogen present. It is probably of albuminoid origin. In the blue indican cases the patients usually present themselves clinically showing depression, relaxation, lowered vitality and persistent anemia. The red indican cases, on the other hand, are more usually of the irritable, anxious, highly neurotic and hysterical types, with good general body and blood conditions, and are not so commonly constipated. Bassler's experience has been that the bacterial and cultural examinations of the feces in the blue and red indican cases show no distinctive differences. Some yield high Gram positive findings, others low. It is almost a daily observation with him that when the proper diet for an indican case has been maintained for a while (essentially proteid free), and the output of indican has been lowered, the individual will develop into a urochrome case for which the diet would be essentially proteid in make-up. Among other things that must be done in the handling of these cases is to put all types on a diet of proper caloric value to meet the weight and work of the individual, and to grade the proteins, protein spares and vegetables to meet the urinary indications. Only in this way can substantial tissue-construction in treatment take place.

Ophthalmic Record, Chicago

August

- 89 The Operation of Pannus Dissection. T. A. Dickson, Mobile, Ala.
 90 A Theory of the Etiology, Prevention, Treatment and Cure of Trachoma. F. B. Eaton, Portland, Ore.
 91 Vossius' Lens-Ring. H. Gifford, Omaha.
 92 Demonstration of the Hemianopic Prism-Phenomena of Wilbrand. A. Saenger, Hamburg, Germany.
 93 Large Piece of Wood Embedded Deeply in Orbit of Child 25 Months Removed with Preservation of Vision. C. A. Vasey, Spokane, Wash.

Ohio State Medical Journal, Columbus

August 15

- 94 Treatment of Neuralgias by Deep Injections of Alcohol. C. R. Ball, St. Paul, Minn.
 95 "Pole Ligation" for Exophthalmic Goiter. J. H. Jackson, Toledo.
 96 Nystagmus as Related to Diseases of the Inner Ear and Cerebellum. W. B. Chamberlin, Cleveland.
 97 Mastoid Operative Methods and Prognosis as Influenced by Labyrinthine Disease. J. E. Brown, Columbus.
 98 Cerebellar Abscess. W. Mithoefer, Cincinnati.

Texas State Journal of Medicine, Fort Worth

August

- 99 A Year's Progress in Medicine and Pediatrics. W. Shropshire, Yoakum, Tex.
 100 Submucous Resection of the Nasal Septum. H. B. Decherd, Dallas, Tex.
 101 Need of Sanitary Education in Both Town and Country. W. H. Blythe, Mt. Pleasant, Tex.
 102 Classified Delusions of the Insane. R. B. Sellers, Comanche, Tex.
 103 Infant Mortality. T. Y. Hull, San Antonio, Tex.
 104 Puerperal Eclampsia. B. G. Prestridge, Alvarado, Tex.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

August 20

- 1 Strain. L. Brunton.
 2 *Peptic Ulcer and Dilatation of the Stomach. T. R. Bradshaw.
 3 *Case of Migraine Associated with Chlorin Retention. H. Higgins.
 4 Rough Bacteriologic Examination of the Condition of Swimming-Bath Water. G. H. Pearce.
 5 Case of Pernicious Anemia Terminating in Acute Diabetes. J. Parkinson.
 6 *The Abuse of Purgatives. H. French.
 7 Case of Rheumatic Arthritis Followed by Streptococcus Invasion. G. H. Strong.

2. **Peptic Ulcer and Dilatation of the Stomach.**—An interesting case is cited by Bradshaw, that of a widow, aged 64, who first consulted him in October, 1900. Many years before she had been attended by a well-known physician for hematemesis, and subsequently for mitral regurgitation. When Bradshaw saw her she had gastric pain, there was vomiting, and the stomach was distended. At times the distention was great and was relieved by copious vomitings of watery fluid containing a little blood, sarcinae, and a good deal of free hydrochloric acid. The patient was clearly suffering from temporary complete occlusion of the pylorus. A surgeon who saw her was unwilling to operate on account of her age and the presence of valvular disease. The patient also declined operation, and after one trial of lavage resolutely refused to allow Bradshaw to repeat the process. For some days she was fed entirely by the rectum; even then the stomach continued to fill up with its own secretions. On one occasion spontaneous evacuation through the pylorus and the bowels took place. After some days the power of retaining a little food returned, but any slight increase in the amount was liable to be followed by complete occlusion. A small piece of solid food no bigger than a grain of corn seemed capable of plugging the pylorus; any distention of the stomach caused it to drop and the pyloric end to become kinked.

For 8 years she lived on a pint of fluid and 2 or 3 crumbly bisenits per diem, and in spite of this care had an attack of complete occlusion every 8 or 12 months, each one of which it was thought would prove to be the last. She wore an abdominal belt, which certainly seemed of some service in supporting the stomach. She retained her mental and bodily vigor under this regimen. Two years ago, however, she insisted on consuming meat and vegetables in considerable quantity. An attack of hemorrhage took place. However, she persisted with the new and enlarged dietary, and instead of getting

worse she improved, and after being confined for eight years to a daily allowance of a pint of liquid she found that she was now able to take ordinary food in normal amounts. She began to put on flesh, and for the last two years she has enjoyed good health, takes her meals as do others, and has no return of vomiting or other serious symptoms of gastric trouble. Apparently the disturbance from the taking of solid food two years ago led to the ulceration or stretching of the adhesions that restrained the pylorus.

3. **Migraine Associated with Chlorin Retention.**—This paper deals with records of observations made in a case of long-standing neurasthenia and migraine in a well-preserved man, aged 43. The chief subjective sensations complained of were as follows: 1. Sensations of exaggerated fatigue, which the French express by the word "*courbature*" and the Italians by "*taglia gambe*" (literally, the legs cut from under one). 2. Mental depression of the overwhelming unreasoning kind, so characteristic of neurasthenia. 3. Headaches, lasting sometimes as long as 3 days, accompanied by the usual migraine symptoms; they usually caused insomnia, as he was obliged to sit up in bed to ease the pain; so soon, however, as he slipped down he was awakened with a fresh exacerbation. Depression and fatigue sensations were always associated, analytically, with "Joulie" hypoacidity and more or less decided increase in the "Jacquemet" reaction; on several occasions the tube used in the latter test could be held upside down for as long as 10 seconds before the layer of colloid would allow it to fall. These symptoms were invariably and quickly removed by means of not more than 70 drops of phosphoric acid. On each occasion there was a decided increase in the indican. When he complained of depression alone hypoacidity was not always associated with the symptoms, the urine being occasionally even hyperacid.

In reviewing the facts of this case in order to decide on the details of treatment, Higgins says that it is quite clear that chlorin retention dominates the clinical picture. The therapeutic measures recommended were the following: A Glénard's belt with gentle abdominal exercises and minute care in emptying the colon, if necessary, by enemata; 100 and 150 gm. respectively of grilled lean meat on alternate days, 3 eggs daily, 1 or 2 tablespoonfuls of sour (lactic acid) milk, the remainder of a ration of 80 gm. of proteid to be made up by fish or casein freshly prepared by citric acid. It was particularly insisted on that no proteid should be taken unless it was quite fresh. The vegetable salts of 500 gm. of fresh vegetables were ordered to be taken, with care. They were to be omitted whenever the depression following their ingestion lasted more than an hour or when the headaches recurred. As during the above observations the blood pressure had already risen to 95 mm., only 0.5 gm. of calcium carbonate was given; this was to be increased or diminished as the blood-pressure rose or fell. Two grams of hydrate of magnesium were given, as well as a small ration of iodine in organic combination.

6. **Abuse of Purgatives.**—French shows that it is very important to realize that although it is relatively easy to produce an action of the intestine by means of a purge, this is a very different thing from curing constipation. Purgatives are administered far too indiscriminately, he declares, and a great deal of constipation is increased rather than diminished by them, and it may even actually be produced by them. Just as it is a natural instinct of the brain and body to go to sleep for a regular period in each 24 hours, so it is the natural instinct of the large intestine to empty itself periodically once every day. This regular habit should always be encouraged, and if the bowels opened at the same time each day constipation would be almost non-existent. The difficulty is that, from carelessness and other causes, the action of the bowels may be postponed or responded to irregularly, with the result that, as time goes on, the bowel, brought up irregularly, shows its desire to act irregularly; some days there will be an action, other days not.

Thereupon, those who do not think sufficiently, or do not know what they are doing, at once either take or prescribe some purgative dose, such as castor oil, salt or even calomel, with the result that the contents of the bowel are driven

through, it is true, and there is an apparent relief of the constipation; but the mere fact that there has been an over-action of the bowel to-day makes it all the more likely that there will be no action at all to-morrow and the next day, so that by that time another dose may seem to be required; and so the condition goes on from bad to worse because, instead of encouraging Nature's natural tendency to act once a day, the bowel is forced periodically and left inactive in the intervals. Purgatives should be used with the greatest caution, and a strong dose should never be given when a mild dose would suffice. If the case is merely one of simple constipation it is better to spend some weeks or months trying to coax back the regular habit by getting the patient to try hard at a regular time each day, at the same time giving him more fluids to drink and some foods with an insoluble residue to eat, than to give laxatives at all. Examples of these kinds of foodstuffs are the fiber of green vegetables and fruits, and proportions of husks in porridge and brown bread.

British Medical Journal, London

August 20

- 8 Some Pharmacologic Effects of Strong Sulphur Water of Harrogate. D. Brown.
- 9 *After-History of Forty Cases of Epithelioma of the Lip. A. R. Short.
- 10 Effect of a Denture After Excision of the Upper Jaw and Septum Nasal. R. Parker.
- 11 *An Immense Renal Calculus. G. W. Ord.
- 12 Simple Method of Removing Sebaceous Cysts. H. Freeth.

9. After-History of Epithelioma of Lip.—This report has been drawn up to afford some ground on which opinion may be based in endeavoring to decide whether the more extensive operation is really desirable. The cases are classified according to the method of operation adopted, the operations for recurrence being classed separately.

1. One operation only; removal of growth on lip by a V-incision; glands not removed; 23 patients, of whom 14 are now well, 4 are known to have died of recurrence, and 2 more have probably done so, and 3 are lost sight of.
2. One operation only; removal of growth on lip and of a palpable gland or glands; 6 patients, of whom 1 is probably cured, 2 died of recurrence, and 2 cannot be traced.
3. Removal of growth on lip and complete clearance of all the submaxillary glands on that side at the same time or soon after, although not palpably enlarged; 3 patients; 2 well, 1 recurred. All cases are rather recent.
4. Recurring cases, patients operated on more than once; 7 patients; 2 are well, 1 has probably had recurrence, 1 died of pneumonia without recurrence, and 3 died of recurrence.
5. Recurring cases in which first operation was performed elsewhere, 6 patients; 2, probably 3, are well, 3 died of recurrence.

It will be seen that of those cases in which no glands were removed at the first appearance 16 ended favorably, and 7 terminated fatally as the result of recurrence. When, however, there were already enlarged glands, though perhaps only one, 1 case resulted favorably, and 5 terminated fatally. There is little doubt, in the author's opinion, that an extensive removal of all the glands, besides those enlarged, is indicated in this latter class.

11. An Immense Renal Calculus.—Ord's case is of great interest for the following reasons: (1) the presence of calculi in both kidneys; (2) the size of the calculus, $3\frac{1}{4}$ inches by 2 inches by 2 inches; (3) the comparatively small amount of discomfort and pain, considering the size and irregularity of the stone; (4) the extremely healthy appearance of both the kidneys at the operations; (5) the separation of the calculus into two large fragments and one small one, articulating by facets, and in a way resembling a knee joint with patella. The joint was movable in a front to back direction, and was evidently flexed whenever the patient bent her back. This capacity for flexion doubtless prevented much of the pain.

12. Removal of Sebaceous Cysts.—In the method employed by Freeth an incision is made, not over the cyst, but through the healthy skin alongside it, parallel to and the same length as the shortest diameter of the cyst. The hypodermic injection of a little eucain solution along the line of the incision is all the anesthetic required. A small blunt hook is then inserted into the incision and is worked round the cyst, tearing through the adhesions of the cyst wall, first on the superficial aspect, as that is where the cyst wall is thinnest and most liable to burst, and then on the deepest aspect, until the cyst is completely separated, when it can easily be delivered by pressure from above, much in the same way as a cataract

is delivered. A dab of collodion on the wound is sufficient dressing. The advantages of this method are said to be:

1. The incision is through healthy skin and is, especially when the cyst is oblong, much shorter than by the usual method.
2. The union is quicker, more satisfactory, and the appearance of the resulting scar much better than that of an incision through the altered skin over the cyst.
3. A minimum amount of anesthetic is used, as only a linear incision is required.
4. In case of cysts situated on the scalp very much less hair need be cut, as all that is required is a single snip of the scissors over the site of the incision.

Australian Medical Journal, Melbourne

July

- 13 Quinsey. T. K. Hamilton.
- 14 *Causation of Infantile Paralysis. W. MacKenzie.
- 15 *Cervical-Rib. F. D. Bird and J. Smith.
- 16 Recent Advances in Obstetrics. G. Rothwell.
- 17 Recent Work in Treatment of Puerperal Sepsis. H. C. Lloyd.
- 18 Management of the Normal Puerperium. R. T. Sutherland.
- 19 Modern Methods in Private Obstetric Practice. R. H. Fetherston.
- 20 Dystocia. Early Recognition and Surgical Management. R. H. Morrison.
- 21 *Curative Effects of Radium on Cancer in Mice. H. Lawrence.
- 22 Case of Chorio-epithelioma of Uterus. W. E. Wilson.

14. Causation of Infantile Paralysis.—MacKenzie's paper may be summed up as the recognition of the treatment of the muscle as the all-essential in this disease. Instead of waiting for a chance recovery in the anterior cornua, and treating in a perfunctory way the muscles with massage and electricity, it recognizes the fact that every affected muscle will work, provided that a commencement be made from zero. It recognizes that an affected limb will retain its heat, and show little waste, provided that it be rested and worked within physiologic limitations, even without massage and electricity. Work must not be done for the muscle, it must work. Much patience is required; results are slow in arriving in many cases, but these will merit the time and trouble spent.

15. Cervical-Rib.—Bird and Smith review the clinical history of cervical-rib and report 5 cases.

21. Radium.—Lawrence advocates the use of large amounts of radium and increasing the length of time of application, the object being to obtain the selective action of the ultra-penetrating rays of the radium on the cancer cells. He records the results of his experiments with mice, which were extremely satisfactory.

Medical Press and Circular, London

August 10

- 23 Convulsions and Epilepsy in Early Life. L. Guthrie.
- 24 Treatment of Mental Excitement in Asylums. G. M. Robertson.
- 25 Varieties of Molluscum Contagiosum. P. S. Abraham.
- 26 Amputations. W. T. Thomas.
- 27 Chronic Intestinal Stasis. W. A. Lane.

August 17

- 28 Convulsions and Epilepsy in Early Life. L. Guthrie.
- 29 Printers' Palsy. J. C. McWalter.
- 30 Proposed Sterilization of Certain Degenerates. R. R. Rentoul.
- 31 Cholera Outbreak Among the Nurses of the Presidency General Hospital, Calcutta. C. R. Macrae.

Journal of Obstetrics and Gynecology of the British Empire, London

August

- 32 B. Coli Infection of Urinary Tract Complicating Pregnancy. E. N. Burnett.
- 33 The Pelvic Floor Aperture. R. H. Paramore.
- 34 The Inflammatory Pelvic Mass. W. W. Chipman.

Clinical Journal, London

August 10

- 35 *Non-Surgical Treatment of Ulcer of the Duodenum. G. Herschell.
- 36 Retention of Urine. H. Lett.
- 37 Pitfalls in Diagnosis of Common Diseases of the Eye. A. H. Thompson.

August 17

- 38 Arthritis Deformans. O. Grunbaum.
- 39 Small-Pox and Its Early History. F. M. Sandwith.
- 40 Localized Tuberculosis Treated with Tuberculin. C. Riviere.

35. Non-Surgical Treatment of Ulcer of the Duodenum.—Herschell is convinced that the chief reason for the want of success so frequently experienced by those attempting to cure a duodenal ulcer by medical means is the half-hearted manner in which the treatment is carried out and the neglect

to make use of the results of recent scientific work. When there is any marked interference to the passage of food along the duodenum, or immediate danger to life from hemorrhage, or perforation, actual or impending, surgical measures are urgently demanded. In their absence one may undertake the medical treatment of a duodenal ulcer with a distinct probability of success, if the patient will cooperate. First, Herschell would eliminate any condition which may possibly account for the deficiency of protecting bodies in the blood. Next, he would remedy the deficiency of antitryptic and antilytic substances in the blood, and reduce the acidity and peptic power of the gastric juice. Then he secures the stomach against distention. One of the chief ways in which a gastroenterostomy conduces to the healing of a duodenal ulcer is by preventing distention of the stomach. One can secure much the same result—(a) by preventing the pyloric spasm by the administration of atropin and alkalies; (b) by giving the food in small amounts at comparatively short intervals; (c) by giving the drink, which should be hot water, not with the meals, but when the stomach is empty. It will then pass quickly out of the stomach, and will incidentally wash and cleanse the surface of the ulcer in the duodenum. Lastly, treat any adhesions.

In order to prevent relapses it is necessary for the patient to observe the following rules for a considerable time after his cure:

1. A proper belt to support the lower abdomen should be constantly worn.
2. A daily dose of olive oil should be taken, fasting every morning, provided that it agrees.
3. A daily dose of normal horse serum should be taken after the principal meal for a month, and then twice a week for another month. In the spring and autumn a dose of serum should be taken twice a week for a month as a prophylactic.
4. All vegetables should be put through a sieve.
5. Preference should be given to white meats, and to boiling or steaming instead of roasting or baking. All made dishes, curry, condiments, pickles and vinegar should be permanently excluded from the diet.
6. The blood should be examined periodically for hemoglobin and steps taken to keep it up to a normal standard.
7. If there has been any melena or occult blood the patient's stools should be examined periodically after a three-days' hemoglobin-free diet.

Dublin Journal of Medical Science

August

- 41 Pathologic Report of the Rotunda Hospital for the Year Ending Oct. 31, 1909. R. J. Rowlette.
- 42 Dysentery or Dysenteric Diarrhea in West African Prisons. S. G. Gray.
- 43 *Temperature Curve in Pulmonary Tuberculosis. M. S. Baker.
- 44 Why Has Small-Pox Declined in Prevalence and Fatality? J. Moore.

43. Temperature Curve in Pulmonary Tuberculosis.—Despite the fact that the temperature range has no fixed relation to the morbid changes in the lungs, Baker believes that no other clinical feature offers so reliable a criterion on which to form conclusions as to the patient's future. It is usual to regard the absence of fever as a hopeful sign, although occasionally it will be found that rapidly-advancing cases remain apyrexial throughout. The significance of a subnormal temperature range may best be considered in relation to the circulatory condition present. So long as the pulse remains good, a subnormal oral temperature is not a serious import, but when present in conjunction with a rapid pulse and low intra-arterial pressure it may be regarded as a serious sign. In uncomplicated cases the presence of fever is conclusive evidence of the activity of the disease, and if persistent must influence the prognosis unfavorably. Continuous and remittent fevers are often present in rapidly-advancing cases, and indicate more certainly than any other sign a progressing disease. An intermittent fever of the hectic type is so frequently associated with cavitation that its presence must necessarily darken the outlook, while an intermittent temperature curve whose amplitude of variation is less marked, yields more readily to treatment than continuous or remittent fever. Many observers regard an inverse fever with anxiety, and the sudden appearance of a high inverse range in afebrile cases is specially significant, being often associated with the onset of a miliary infection.

The behavior of the temperature curve under the influence of open-air treatment and rest is a valuable prognostic guide. Cases which exhibit a rapidly subsiding temperature range

under treatment are especially hopeful, while those which show a persistent fever and impaired nutrition under like circumstances hold out little hope of recovery; so long, however, as the nutrition remains good there may eventually occur a subsidence of fever. In charts which show an irregular range where periods of pyrexia occur at intervals a lengthening of the apyrexial periods is to be looked for in favorable cases. A fever suddenly appearing on the second to the fourth day after an hemoptysis, accompanied by dyspnea and cyanosis, and persisting without remission, may always be regarded with the gravest apprehension as indicating the onset of an aspiration-pneumonia, a complication which almost invariably proves fatal.

Annales de l'Institut Pasteur, Paris

July, XXV, No. 7, pp. 529-608

- 45 Disease of Silk-Worm Moths. (Le rouge du papillon du ver à soie en Cochinchine.) C. Broquet.
- 46 Theory and Practice of Cheese-Making. (Technique fromagère.) P. Mazé. Concluded.
- 47 Fowl Diphtheria. (Le microbe de la diphthérie des poules.) J. Bordet and V. Fallv.
- 48 Migration of Alkaloids in Grafts. (Migration des alcaloïdes dans les greffes de Solanées sur Solanées.) M. Javillier.
- 49 Proteolysis in Anthrax Cultures. (Protéolyse de la bactérie charbonneuse.) E. Lazarus.
- 50 Microbes that Produce Phenol. K. Dobrowski.

Annales de Médecine et Chirurgie Infantiles, Paris

August 1, XIV, No. 15, pp. 465-492

- 51 *Diphtheritic Cardiopulmonary Paralysis. Mute.
- 52 *Ichthyosis and the Thyroid. J. Roux and J. Galippe.
- 53 Treatment of Severe Forms of Atrophy and Hypotrophy in Infants by Feeding with Milk Heated to 108 C. G. Variot.

51. Diphtheritic Paralysis.—The paralysis in the case reported came on about the fifteenth day of mild diphtheria notwithstanding that 70 c.c. of antitoxin had been given in 3 days. The paralysis was evidently the work of endotoxins and further injections of antitoxin were consequently of no avail. The paralysis involved the larynx, heart and lungs but the child, a boy of 10, was finally tided past the danger stage under symptomatic measures and the cure was complete by the end of the third month. He was kept sitting up in bed to prevent suffocation and 2 or 3 mg. of strychnin sulphate was injected daily subcutaneously for 15 days and then changed for another form of strychnin.

52. Ichthyosis and Thyroid Treatment.—Three months of thyroid treatment proved absolutely ineffectual in the 2 typical cases of ichthyosis reported.

Annales des Maladies des Org. Génito-urinaires, Paris

July 15, XXVIII, No. 14, pp. 1249-1311

- 54 Urinary Disturbances after Various Earthquakes in Italy since 1904. (Les troubles urinaires chez les survivants de la catastrophe Calabro-Sicilienne.) C. Bruni.
- 55 Cysto-Urethroscopy. L. Buerger (New York).
- 56 Cystitis from Passage of Long Silk Threads into the Bladder 2 Years after Hysterectomy. Successful Removal of ½-yard piece of Silk under Cystoscopy. Le Fur.
- 57 *Clamping and Ligating the Hilus of the Kidney Instead of the Pedicle in Nephrectomy. (Sur la forcepression appliquée méthodiquement dans la néphrectomie.) S. d'Este.

57. Clamping and Ligating the Kidney Hilus Instead of the Pedicle in Nephrectomy.—D'Este reports Tansini's successful technique for nephrectomy when there is sclerosis of the hilus and vessels. He applies a clamp to the hilus, including the large vessels and the ureter, and ligates here. Among his 47 operations of the kind he lost only 1 patient and this in 1875, his mortality thus being only 2.12 per cent. This technique also materially shortens the operation.

Archives de Médecine des Enfants, Paris

August, XIII, No. 8, pp. 561-640

- 58 *Diabetes in Children. (Diabète sucré chez l'enfant.) M. Lauritzen.
- 59 *Characteristic Crying of Infants with Inherited Syphilis. (Les cris chez les nourrissons hérédosyphilitiques.) G. Sisto.

58. Diabetes in Children.—A similar article by Lauritzen was summarized in THE JOURNAL, August 27, page 813.

59. Characteristic Crying of Infants with Inherited Syphilis.—Sisto remarks that infants cry from hunger or pain and that an inherited syphilitic taint may cause such pain, generally in the region of the epiphysis, that the children scream

or moan incessantly. This constant crying day and night may be the only manifestation of the constitutional syphilis. Under anti-syphilitic treatment the child soon ceases to cry. His statements are based on 8 cases described in detail from his own experience and 5 from Comby's. The children commenced to cry from the second to the fortieth day of life, screaming when they were moved and the crying generally being most severe at night. There was no known history of syphilis in some of the families but the children stopped crying at once under mercurial treatment. Radioscopy generally revealed an osteochondritic process.

Lyon Médical, Lyons

July 31, XLII, No. 30, pp. 101-110

- 60 *Two Cases of Chronic Retention of Urine without Mechanical Obstacle. Rochet and Müller.

July 31, No. 31, pp. 111-118

- 61 Cancer of the Thyroid with Exophthalmic Goiter Symptoms. Postoperative Myxedema after Partial Thyroidectomy. X Delore and H. Almarthine

60. Retention of Urine Without Mechanical Obstacle.—The authors report two cases in which cure was effected by stretching the upper urethra through a buttonhole opening in the perineum.

Presse Médicale, Paris

August 13, XVIII, No. 65, pp. 617-623

- 62 Study of Five Members of a Family with Inherited Syphilis. (Étude d'une famille d'hérédosyphilitiques.) A. Baric and P. Gastinel.

Revue de Chirurgie, Paris

August, XXX, No. 8, pp. 211-216

- 63 Jaundice with Echinococcus Disease of the Liver. (De l'étiologie dans les kystes hydatiques du foie.) E. Quénu.

- 64 Traumatic Dislocation of the Scaphoid on the Tarsus. (Luxations traumatiques du scaphoïde tarsien, en particulier luxations doubles.) A. Boeckel.

- 65 *Stricture of the Lower Intestines from Inflammation Outside, especially in Women. (Rétrécissements péri-coliques pelviens: péri-recto-sigmoïdiens.) G. Küss. Commenced in No. 2.

- 66 *Treatment of Arterial Aneurysms. C. Monod and J. Vanverts. Commenced in No. 5.

65. Stenosis of the Colon from Inflammation Outside.—Küss concludes his long study of what he calls pelvic pericolic stenosis by giving the history in detail of 50 cases, including a number previously unpublished. The inflammation may have originated in the peritoneum, adnexa, or rectum. The strictures in question are characterized by the fact that the mucosa seems to be intact and slides on the subjacent tissues and on the abdominal wall, the latter seeming to form a solid part of the fibrous perirectal mass. The findings suggest cancer except for a history of pain and acute attacks suggesting inflammation in the left half of the abdomen. Hysterectomy, breaking up adhesions, or other suitable intervention is followed as a rule by a complete functional cure; medical measures alone are ineffectual.

66. Treatment of Arterial Aneurysms.—Monod and Vanverts discuss the aneurysms of the various arteries in turn, classifying them thus under 19 heads and reviewing the experiences recorded in the literature with each type, especially the ultimate outcome after the different methods of treatment followed in each.

Semaine Médicale, Paris

August 17, XXX, No. 33, pp. 385-396

- 67 Industrial Diseases and Industrial Insurance. (Essai sur les maladies professionnelles.) V. Thébaud.

Archiv für Gynaekologie, Berlin

XCI, No. 2, pp. 213-178. Last indexed Aug. 6, p. 539

- 68 Tumors in Pelvis Interfering with Delivery. (Geburtsstörungen durch Beckentumoren.) K. Stern.

- 69 Retroversion of Corpus Luteum. J. W. Miller.

- 70 Deliveries with Contracted Pelvis. (Ueber Geburten bei engem Becken.) M. Yamasaki.

- 71 *Further Experiences with Bossi's Dilator. H. Hofmann.

- 72 *Conclusions From 85 Pubiotomies. (Ueber die Bewertung der Hebosteotomie auf Grund von 85 Operationen.) E. Roth.

- 73 *Comparative Study of Cesarean Section, Pubiotomy and Extracervical Section. (Welche Stellung nimmt die peritoneale Kaiserschnitts-Operation zu der extra- und extra-cervicalen Kaiserschnitts-Operation?) E. Roth.

- 74 *Treatment of Eclampsia. (Zur Kritik des cervikalen Kaiserschnittes.) Richter.

71. Instrumental Dilatation of the Cervix.—At the clinic in charge of Leopold, Bossi's dilator is considered the best instrument for this purpose and it has been used there to start premature spontaneous delivery in 52 cases and in 123 cases as a preliminary to immediate artificial delivery. The indications were mostly eclampsia, nephritis, heart disease, advanced pulmonary tuberculosis or hydramnion. There was no laceration of the cervix in 60 cases, and only such slight injury that there was no bleeding in 35 other cases; tears important enough to require suturing occurred in 28 cases, but the puerperium was febrile in only 8 of these and the fever was briefly transient in all. The dilator must be spread only between the uterine contractions and the instrument should not be used for pluri-parae with cicatricial lesions in the cervix although this was done in several cases in Leopold's clinic without harm. Another important point is to carry the dilatation far enough.

72. Indications for Pubiotomy.—This communication from the Dresden clinic for women, in charge of Leopold, reports the details of 85 cases in which pubiotomy was done. The puerperium was febrile in 48 of the cases and in 20 the condition was serious. Six of the children died possibly in consequence of the operation but none of the mothers. In 10 of the 40 cases in which the women were examined later there were complaints of pain on long standing or walking or lifting. In 21 of the 38 women examined there was a tendency to prolapse of the vagina or uterus or both. In only 6 of the 20 cases in which the women passed through another pregnancy after the pubiotomy was the pelvis found permanently enlarged. The conclusions from the experiences related are that pubiotomy must be restricted to multiparae, to the aseptic cases and to those free from general disease. Pelvis with a true conjugate under 7 cm. should also be excluded from pubiotomy as also all cases in which there is much disproportion between the size of the pelvis and the fetal head.

73. Cesarean Section.—Leopold reports 300 vaginal Cesarean sections and compares the lessons learned from these and other obstetric operations, his final conclusions being that the classic Cesarean section still retains its preeminence, and that every woman with a much contracted pelvis should be sent to an institution at least two weeks before term so that she can be prepared for any necessary operation, infection warded off, and the most propitious operative technic selected.

74. Treatment of Eclampsia According to Stroganoff's "Prophylactic" Method.—Roth reports 31 cases of eclampsia in which Stroganoff's method of treatment was applied. (It was described in THE JOURNAL, July 3, 1909, page 86.) Roth expresses surprise that this technic is not more generally followed as he considers it remarkably effectual and peculiarly adapted for general practice. It must be instituted in time, however; even minutes count in eclampsia. Stroganoff, Roth says, has certainly obtained better results in eclampsia than any other clinician can boast, and the outcome at Leopold's clinic was also unexpectedly favorable as the method had been applied with considerable skepticism. Good results may be anticipated when the physician who first sees the patient begins treatment according to Stroganoff's method and then sends the patient to an institution where it can be continued with expert skill. If general practitioners and the clinics could thus work together, he declares, the treatment of eclampsia would enter on a most promising phase. Others have treated women in eclampsia with morphin and chloral but they gave them only during the convulsions, while Stroganoff keeps the woman constantly under the influence of small doses of the drugs and thus wards off any further attacks. No external influence, noise or light, is allowed to disturb the drowsiness induced by the sedatives. If the woman has to be touched, it is done under 20 drops of chloroform. His plan is to give 0.015 gm. (1/4 grain) morphin at once; in 1 hour 2 gm. (30 grains) chloral; at the third hour, repeat the dose of morphin; at the seventh hour, repeat the dose of chloral; at the thirteenth hour, 1.5 gm. (23 grains) chloral and repeat

this dose at the twenty-first hour. He gives the chloral in a solution of 20 parts chloral hydrate, 20 parts mucilage of acacia and 180 parts distilled water. Only 1 of the 31 women died and autopsy revealed signs of pneumonia in this case, possibly responsible for the fatal outcome.

Beiträge zur Klinik der Tuberkulose, Würzburg

XVII. No. 1, pp. 1-149. Last indexed Aug. 13, p. 630

- 76 Experimental Research in Tuberculous Infection. O. Grüner and F. Hamburger.
- 77 Histologic Research on the First Changes after Tuberculous Infection. H. F. Helmholtz and T. Toyofuku.
- 78 Occurrence of Tubercle Bacilli in the Tissues and Changes in their Property of Being Acid-Fast. (Beitrag zum Vorkommen des Tuberkelbazillus im Gewebe, sowie zur Aenderung seiner Säuresfestigkeit.) P. Geipel.
- 79 Various Aspects of and Experiences with Tuberculin Treatment of Tuberculosis. (Beiträge zur spezifischen Behandlung der Tuberkulose auf Grund klinischer Beobachtungen.) W. Neumann.

Beiträge zur klinischen Chirurgie, Tübingen

July, LXVIII, No. 3, pp. 605-827

- 80 Sarcomatous Carcinomas and Carcinomatous Sarcomas. (Ueber Mutationsgeschwülste und ihre Stellung im onkologischen System.) H. Coenen.
- 81 Tardy Meningitis after Apparent Recovery from Fracture of the Skull. E. Lohard.
- 82 *Appendicostomy. H. v. Salis.
- 83 Infections with Anaerobic Bacteria. (Zur Kenntnis anaërober Staphylokokken und des Bacillus funduliformis.) M. Heyde.
- 84 *Transplantation of Dead Bone. (Ueber Knochenersatz.) W. Kausch.
- 85 Contact Cancers. (Zur Frage der Abklatschcarcinome.) A. Caan.
- 86 Hemostasis by Twisting in the Vessel Walls. (Ueber die Verwendbarkeit der Blunk'schen Blutgefäßklemme zur definitiven Blutstillung.) H. Petzsche.
- 87 Lessons from 225 Cases of Fracture of the Skull. (Bericht über 225 Schädelfrakturen 1897-1907 mit Nachuntersuchungen.) L. Frank.
- 88 Resection of Half of Pelvis. (Ueber Resektion einer Beckenhälfte und Exarticulation interilio-abdominalis.) D. Kulenkampf.
- 89 Congenital Fistula in the Lower Lip. (Ueber die angeborenen Unterlippenfisteln.) A. Oberst.
- 90 The Spiral Incision in Treatment of Varicose Veins. (Zur Behandlung des var. mit dem Spiralschnitt nach yser.
- 91 Local Tumor-Forming : etzny.

82. Appendicostomy.—Salis reports 8 cases in which direct medication of the inflamed bowel through the appendix, brought out and sutured to the skin, proved the means of curing obstinate, simple or membranous colitis. Good results were obtained even in the purulent ulcerative form. The technic is so simple that he prefers it to an artificial anus, to resection of the bowel or ileosigmoidostomy, as it answers practically the same purpose while the operation is comparatively an insignificant one. The opening is not large enough, however, he states, in case of mechanical or peritonitic ileus.

84. Implantation of Dead Bone.—Kausch has implanted bone from the cadaver, ivory supports, and dead bone, reporting here 8 cases. The results show that cadaver bones and foreign substances are unsuitable material for implantation, but that bone taken recently from the human body but no longer living can be made to answer the purpose admirably. In one of his cases the tibia was resected, including the periosteum, on account of sarcoma, and a corresponding piece of the tibia from a leg amputated the day before on account of sudden trauma was implanted in its place. The periosteum was scraped off, the epiphyses saved off, the bone marrow scooped out, and a piece 8 cm. (over 3 inches) was implanted in the patient's leg. It was held in place with a long ivory tube at each end, passed into the inner canal in the bone of the graft and stumps. Recurrence of the sarcoma compelled amputation of the leg 266 days later. The implanted bone had become covered with a new growth of periosteum and was being absorbed, its place being taken throughout by new bone tissue. The ivory had been absorbed also but there was no new regeneration of bone in its place.

Berliner klinische Wochenschrift

August 8, XLVII, No. 32, pp. 1485-1524

- 92 Importance of Ehrlich's "606" in Treatment of Syphilis. (Bedeutung des Ehrlich'schen Arsenbenzols für die Syphilisbehandlung.) A. Nessler and E. Kuznitsky.
- 93 *Relations Between Hypersusceptibility and Immunity. (Beziehungen zwischen Ueberempfindlichkeit und Immunität.) E. Friedberger.
- 94 Serology and Psychiatry. H. Much.

- 95 *Avoidance of Accidental Pseudopulmonary Sounds in Auscultating the Apices. (Ueber pseudopulmonale Geräusche und ihre Vermeidung bei der Auscultation der Lungenspitzen.) E. Allard.
- 96 Origin of Emphysema. (Zur Emphysemfrage. II.) L. Hofbauer.
- 97 The So-Called Trachoma Germ not Identical with the Gonococcus. (Entsteht der Trachomerreger durch Mutation des Gonococcus?) L. Halberstaedter.
- 98 Positive Findings with the Meiotagmin Test in 30 out of 32 Cases of Cancer. (Zum Studium der Meiotagminreaktion bei bösartigen Geschwülsten.) C. Stablini.
- 99 Influence of Lipoids on Autolysis of the Liver. (Einfluss der Lipide auf die Leberautolyse.) G. Satta and G. M. Fasiani.

93. Relations Between Hypersensibility and Immunity.—Friedberger is inclined to regard these as practically identical processes, differing only in degree.

95. To Avoid Accidental Sounds in Ausculting.—Allard distinguishes the sounds due to the muscles or scapula from those originating in the apex by having the patient change the position of arm and shoulder, the change in the sounds then revealing their extraneous nature. The accidental sounds can be excluded by having the patient extend his arm straight, rotate it inward in the shoulder joint and then move the arm backward until the shoulder joint is lowered. With this position there do not seem to be any accidental muscle or scapula sounds; he has noticed moreover that the breathing sounds become more prominent in this position.

Deutsche medizinische Wochenschrift, Berlin

August 11, XXXVI, No. 32, pp. 1473-1512

- 100 Morbid Dread. (Zur Symptomatologie und Therapie der Angst.) A. Cramer.
- 101 *Experiences with Ehrlich's "606" in Treatment of Syphilis. (Beobachtungen an 503 mit Dioxy-diamido-Arsenbenzof behandelten Krankheitsfällen.) W. Wechselmann.
- 102 Glioma Removed from Third Left Frontal Convolution. (Operiertes Gliom der III. linken Stirnwindung.) Coler.
- 103 *Impossibility of the Hair Turning White Suddenly. (Ist plötzliches Ergrauen des Haupthaars möglich?) L. Stieda.
- 104 Endothelial Origin of Mononuclear Cells in the Blood. V. Patella.
- 105 *Origin and Treatment of Scoliosis. E. Hoffmann.

101. See abstract 10 in American Current Literature, this issue.

103. Is It Possible for the Hair to Turn White in a Few Hours?—Stieda answers this question in the negative, stating that extensive search on his part has failed to reveal an authentic case of this occurrence. The cases on record are all based on hearsay evidence or the phenomenon is to be attributed to the individual's not being able or forgetting to use the customary hair-dye. A patient of Behrend's suffered from headache and he advised the man to give up the use of his hair-dye, which was probably responsible for the headaches. The man did so and explained to his friends that the sudden change of his black locks to white was the result of business worries. Stieda also knows personally of a case in which a dark-haired man was taken to prison and when discharged after a few days his hair was white, but simply because he had not taken his hair-dye with him to prison.

105. Origin and Treatment of Scoliosis.—Hoffmann lays great stress on prevention of scoliosis, declaring that once established the treatment is tedious and not very encouraging. He ascribes the development of the curvature to the fact that the child loses the instinctive sense for the correct attitude of the body owing to strain on the muscles from certain attitudes at school work. When examined the child seems to be scoliotic when in reality it merely assumes a scoliotic attitude from disturbances in the sense of muscular balance. Sitting without a support for the back aids in fatiguing the muscles and to rest them the child stoops over or twists around or slides down in its seat. Girls' muscles do not get so much exercise as boys' and consequently these faulty attitudes are more common among them. When this scoliotic attitude once becomes habitual, the child is unable to stand up straight even when it tries to do so, and it has to be taught anew the sense of muscular balance in the spine. This can be done by training, the physician saying, "Chest out; draw in your abdomen; throw your head back; hold your right shoulder lower, etc.," aiding these

commands at first with manual pressure, but later relying on the commands alone and shortening them, until when the child is told to stand erect it assumes automatically the proper position. It may be wise to teach a rather over-corrected attitude at first. This training of the muscles is supplemented with gymnastics to strengthen the back muscles, and he instructs the mothers to carry on the training under occasional supervision by the physician. The measures must be individualized to each case, he says, possibly including a slanting seat in school and higher sole on one side. Creeping exercises, etc., may be useful in advanced stages but he prefers exercises erect, as the aim is to teach the child to stand and sit straight.

Deutsche Zeitschrift für Chirurgie, Leipzig

July, CV, Nos. 5-6, pp. 445-613

- 106 Tardy Sequels of Appendicitis. (Spätfolgen der Epityphlitis.) O. Retzlaff.
- 107 Duodenal Ulcer. (Das Duodenalgeschwür und seine chirurgische Behandlung.) D. G. Zesas.
- 108 Superheated Air in After-Treatment of Laparotomized Patients. (Überheißte Luft nach Laparotomie als peritonell ein Beitrag zur Verheilung des Peritonit.) A. Strempel.
- 109 Post-operative Peritonitis. A. Strempel.
- 110 Retrograde Incarceration. L. Stuckey.
- 111 Rolling Up the End of the Severed Intestine. (Eine neue Methode des operativen Darmverschlusses.) R. Klapp.
- 112 Treatment of Syndactylia. R. Schreller.
- 113 Gunshot Wounds of the Heart. (Herzschüsse.) H. Iselt.
- 114 Tardy Intestinal Hemorrhage after Operative Treatment of Incarcerated Hernia. (Die Spätdarmblutungen nach der Bruchinklemmungsoperation.) C. Canestro.
- 115 Hemorrhagic Glossitis in a Hemophilic. E. Umdrell.

108. Superheated Air in After-Treatment of Laparotomized Patients.—Strempel is enthusiastic over the way in which peristalsis is stimulated after a laparotomy by applying heat to the abdomen, either in the form of the hot-air box or an incandescent electric-light box. He has used the latter exclusively as he happened to have a contrivance of the kind on hand. In his 141 cases flatus passed generally in from 18 to 24 hours, seldom as late as 48 hours. Another advantage of the method is that the patients are thoroughly warmed by it, counteracting the tendency to chilling during the operation. The temperature in his box can never get over 55 C., so that the box does not require very close supervision. He applies it for an hour and a half at a time, with intervals of 3 hours, and keeps this up night and day until all danger of intestinal paralysis is past. He has never witnessed any injurious effect on the heart and vessels although he has kept close watch for any tendency in this direction. No adjuvant measures were needed in any instance as the heat answered all purposes, except in a few cases a pint of water was injected to soften hard feces, or an intestinal tube was inserted to promote passage of flatus when the patients were too weak to strain. The only possible mishap from this method of after-treatment is that very restless patients on arousing from the effects of their anesthetic are liable to scorch the skin against the electric lights. The heat not only stimulates peristalsis but seems to promote absorption and prevent formation of adhesions while it seems to attenuate the virulence of bacteria in the region.

110. Closing the Stump of the Severed Intestine by Rolling it Over.—The long narrow forceps with which the stump of the intestine is clamped are rolled up on the intestine for two or three turns. The last turn is sutured to the body of the intestine and the forceps are then withdrawn. The lumen is thus more effectually closed than by the ordinary technique. Klapp declares, while the procedure is simple and neat.

Fortschritte der Medizin, Leipzig

August 4, XXVIII, No. 32, pp. 961-992

- 115 Surgical Treatment of Heart Disease. (Die chirurgischen Behandlung der Herzkrankheiten.) G. Askanasen.
- 116 Present Status of the Cancer Question. (Heutiger Stand der Krebsfrage.) C. Da Fano. Commenced in No. 30.

Jahrbuch für Kinderheilkunde, Berlin

August, LXXII, No. 2, pp. 121-242

- 117 Determination of Amount of Energy Required in the Food of Infants. (Zur Lehre von der energetischen Bestimmung des Nahrungsbedarfes beim Säugling.) O. and W. Heubner.
- 118 Hypothyroidism in Children. (Hypothyroidie im Kindesalter.) W. Stoeltzner.
- 119 Calcium and Spasmophilia. J. Rosenstern.

- 120 Pylorus Intubation for Spasmodic Stenosis of the Pylorus in Infants. (Über den Pyloruskrampf des Säuglings.) Berend.
- 121 Suppuration in the Salivary Glands. (Über eitrige Speicheldrüsenentzündungen.) P. Aberbach.

118 Hypothyroidism in Children.—Stoeltzner remarks that myxedema is not often correctly diagnosed; the children are generally treated for years on the mistaken assumption of rachitis. As a prospect of a cure grows less and less with the duration of the myxedema, this failure to recognize it early may have disastrous consequences. The rudimentary forms are particularly liable to escape recognition, while thyroid treatment in time is almost a certain cure. In a case of this kind, a boy of 6 had not grown in the last 2 years but seemed otherwise normal, although not particularly bright. Under cautious thyroid treatment by the end of 18 months he had grown 11 cm., nearly 4½ inches. In 2 other cases the myxedema developed after severe measles or mumps, with acute thyroiditis in the latter case. The thyroid treatment ordered was soon abandoned by the family and the child developed pronounced myxedema, but after 2 years it spontaneously subsided. In a fourth case the myxedema developed after a severe fall over a banister, the throat in front bleeding from the injury. The hypothyroidism in this case was evidently of traumatic origin, the first case of the kind on record, he believes. In this case also thyroid treatment promptly cured the child. In conclusion Stoeltzner suggests that the "pasty" children, fat, pale and flabby, may be suffering from hypothyroidism and require thyroid treatment. Overfeeding of children with this tendency to hypothyroidism seems to entail lymphatic enlargement.

119 Lime and a Tendency to Convulsions.—Rosenstern is convinced that the research to date has established the fact that the calcium ions are highly important for the regulation of the phenomena of movements and of nerve stimulation. His own experience confirms the assumption that a deficient proportion of lime in the food may entail nervous over-excitability while he found that the excitability was materially reduced in 15 out of 20 infants with pronounced spasmophilia after ingestion of 100 c.c. of a 3 per cent. solution of calcium chloride (CaCl₂). The cathode opening contraction, the facialis phenomenon and Trousseau's sign all showed the marked influence of the single dose of lime; a solution of sodium chloride, on the other hand, seemed to have a contrary action. No injurious by-effects were observed from the single dose of lime, and Rosenstern thinks that his experience deserves attention as a means of treating an acute attack of threatening convulsions in a child. The infants to whom he gave the lime were all between 4 and 12 months old and most were inclined to dyspeptic disturbances besides the spasmophilic tendency.

120 Stenosis of the Pylorus in Infants.—Berend writes from Budapest to describe his experience with spastic stenosis of the pylorus in his own 2 children. The cases were distinguished further by the intensity of the syndrome. In his first child the weight dropped from 3,050 gm. at birth to 1,800 in less than 3 weeks, and operative treatment became necessary. Loret's divulsion was done; the hard contracted pylorus relaxed in the surgeon's hand during the operation but it was still unusually thick although there was no trace of organic stenosis. The explosive vomiting continued as severe as before, the divulsion having evidently done no good, and the child growing constantly worse, the pylorus was incised and a Nélaton catheter, No. 7, French, was introduced through the mouth and passed through the pylorus into the duodenum. By this means it proved possible to feed the infant and recovery soon followed, all trouble being over by the time the child was 6 weeks old; it is now 3½ years old and perfectly healthy. The disturbances in his second child were not so severe; the pylorus was never palpable and the syndrome disappeared under medical measures alone. The first symptoms in both cases were the uneasiness in nursing so that the children were unable to empty the breast, and the protruding stomach, this protrusion of the stomach region and difficulty in nursing sustaining the assumption that

the spasm of the pylorus is the primary disturbance. Peristalsis in the stomach was noticed 4 days later and the tumor, the size of a hazel-nut, in the pylorus region by the end of the week. He recognized the true trouble from the start and kept a detailed record of all the data, especially the amount of fluid ingested and vomited each day. Notwithstanding the severe derangement from the pylorospasm, the organism tenaciously maintained its normal water balance. He is inclined to ascribe the whole trouble to a lack of balance between the musculature of the antrum and the musculature of the fundus of the stomach; when the innervation of both becomes normal then all disturbances from this source cease. At birth there is neither spasmodic contraction nor hypertrophy of the pylorus, merely the predisposition. Winternitz discusses the cases from the surgical standpoint, calling attention to the extreme retraction of the muscular pyloric ring after the lengthwise incision, indicating excessive tonicity in the muscle. The pylorus was incised over the tube introduced from the mouth; this allowed ample nourishment from the first and the child began to gain at once. The retention pylorus catheter has proved successful in other cases in his hands, but he warns that it should not be left *in situ* longer than 2 days.

Medizinische Klinik, Berlin

August 15, VI, No. 33, pp. 1285-1322

- 122 Tuberculous Disease of the Eye. (Ueber tuberkulöse Erkrankungen am Auge.) C. Hess.
- 123 *Experiences with Ehrlich's "606" in Treatment of Syphilis. (Behandlung der Syphilis mit dem neuen Ehrlich-Hataschen Arsenpräparat.) E. Hoffmann.
- 124 Action of Carbonated Baths on Heart and Vessels. (Die Herz- und Gefäßwirkung alter und neuer natürlicher CO₂-Bäder.) B. Fellner, Jr.
- 125 Certain Digestive and Nutritional Disturbances in Pulmonary Tuberculosis. (Ueber einige Störungen der Verdauung und Ernährung bei Brustkranken.) J. Cecikas.
- 126 Ischl Mineral Muds in Therapeutics. (Ueber Ischler Salzbergschwefelschlamm und dessen Verwendung.) A. Ott.
- 127 Modification of Wassermann Reaction Technic. K. F. Hoffmann.

123. Ehrlich's "606" in Treatment of Syphilis.—Hoffmann states that recurrences have been observed in large numbers of cases of syphilis after treatment with "606" in the customary dosage, and that by-effects have accompanied the use of the remedy to such an extent as to invalidate the claim made for the "606" that it is entirely harmless. In his experience with it by-effects were noticed only when the drug was in an acid solution, while they were absent when a neutral solution was used. The remedy does not certainly kill all the spirochetes as claimed, he says, as he was able in one case to demonstrate the presence of lively spirochetes in lesions on the genitals and tonsils a week after the injection of "606." In the case of a boy of 15 with syphilitic ozena from inherited taint, the improvement at once under the "606" was remarkable. In a case of ulcerated gummas in the mouth, throat and testicles of a man of 40, high fever, pulse of 140 and dyspnea followed the injection of the "606," other signs indicating central pneumonia of embolic origin and secondary pleurisy with extreme weakness of the heart. He ascribes this syndrome to dislodgement of a thrombus in the gluteal muscle following injection of a very acid solution; nothing about the syndrome suggested local infection of the site of the injection. In 2 other cases there was considerable disturbance of the heart action, the pulse running up to 120 and 160, the area of dullness spreading toward the right with accentuation of the second sound. These findings persisted for a few days and then gradually subsided. In another case there was a slight albuminuria. No visual disturbances were ever observed. He knows of a case in a Bonn institution in which the patient died suddenly the night after the injection. Ehrlich adds the details of this last fatal case as he has obtained them by telegraph. The patient, he says, was a woman of 33 with syphilitic apoplexy, paresis of the legs, tachycardia, difficulty in swallowing and accelerated breathing. The conditions in this case should have forbidden the use of the "606," he declares, as he has expressly rejected all responsibility when the remedy is given to other than those healthy except for the syphilis, and the organs sound. He also excludes the metasymphilitic diseases from treatment with

"606." He reaffirms that given in the right way and with proper indications the remedy is free from dangers and does not induce any appreciable by-effects. Ehrlich has the records now of over 3,000 cases.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

August, XXXII, No. 2, pp. 125-240

- 128 Determination of Hemolytic Substances in the Placenta. E. v. Graff.
- 129 No Direct Connection Between Gynecologic and Gastric Disturbances. (Ueber das wechselseitige Verhältnis der weiblichen Geschlechtsorgane und der Erkrankungen des Magens.) O. Vertes.
- 130 Polydactylia. F. Heilmann.
- 131 Multiple Laceration of Vaginal Vault During Delivery. (Ueber mehrmalige Zerreissungen des Scheidengewölbes während der Geburt.) M. Kaufman.
- 132 Operative Treatment of Myoma. K. Franz.
- 133 *Operability of Recurrences After Removal of Uterine Carcinomas. O. Hoehne.
- 134 Groove Formation on the Surface of the Ovary. (Ueber Furchenbildung an der Oberfläche des menschlichen Ovariums.) G. Blen.
- 135 Retrogression of Ovarian Tumors after Vesicular Mole. (Rückbildung von Ovarialtumoren nach Blasenmole.) L. Fränkel.

133. Operability of Recurrence After Removal of Uterine Cancer.—Hoehne makes a point of keeping patients under supervision after he has operated on them for uterine cancer. He tells them to return to be examined at certain intervals and keeps a record of the dates, sending them a notice if they fail to present themselves as ordered; nothing should be allowed to interfere with this systematic reexamination. In 2 cases he was able by this means to discover recurrence in an early stage and successfully remove it, before the patients had the least suspicion that anything was wrong with them again, their general health being excellent. The after-examinations are always made with the greatest care and on discovery of the slightest suspicious lump the patient is taken into the hospital for 2 weeks' control. If the lump grows any larger during this time it is assumed to be malignant and is removed, but if it does not grow or subsides, the patient is dismissed and systematically reexamined at intervals. Prophylaxis of recurrences in this way is much more promising, he remarks, than the efforts to have primary cancer diagnosed earlier. The surgeon can thus root out recurrences on their first appearance. He describes a case in which what was supposed to be a nodular recurrence, not discovered until quite large, proved to be merely thick indurated cicatricial changes in the tissues. In another case what seemed to be merely an inflammatory infiltration proved to be a malignant recurrence extending diffusely through the region. Another case demonstrates the danger of thrombosis of the iliac veins following carcinomatous involvement of the vessel wall. It might be possible in such cases, he suggests, to prevent trouble from this source by ligating the main iliac vein before resecting the cancerous glands encroaching on the vein.

Münchener medizinische Wochenschrift

August 9, LVII, No. 32, pp. 1673-1720

- 136 Intoxication from Decaying Pancreas Tissue. (Zur Theorie der Pankreasvergiftung.) G. v. Bergmann and N. Guleke.
- 137 *Artificial Premature Delivery and Vaginal Cesarean Section with Habitual Fetal Mortality. (Künstliche Frühgeburt und vaginaler Kaiserschnitt bei Habituellem Absterben der Frucht.) O. v. Franque.
- 138 *Treatment of Sciatica with Epidural Injections. L. Blum.
- 139 Relations of *Microsporus* to Solitizing of Fat and Destruction of Bact. *typhi* der Lymphocyten zur Fettspeicherung und *typhi* Bergel.
- 140 The Meistagmin Reaction in Typhoid. L. Vignano.
- 141 The Meistagmin Reaction in Experimental Tuberculosis and in Differentiation of Human and Bovine Tubercle Bacilli Cultures and Infection. A. Gasharini.
- 142 Reconstructed Portrait of Prehistoric Man. (Die bildliche Darstellung des Urmenschen und ihr wissenschaftlicher Wert.) F. B. Solger.
- 143 Rhachiotomy in Treatment of Transverse Presentation. (Der Rhachiotomie bei der verschleppten Querlage mittelst der Rhachiotomie.) *ter.*
- 144 Te *ter.* (Zur Lehre vom kryptogenetischen *ter.*)
- 145 *Nephritis Secondary to Exophthalmic Goiter. (Nierenkrankung bei Basedowscher Krankheit—Thyreogene Nephritis.) M. B. Graupner.

137. Prophylaxis of Habitual Death of the Fetus.—Anomalies or disease of the placenta or changes resulting from the influence of chronic nephritis or nutritional disturbances in the endometrium may be responsible for the death of the

fetus in repeated pregnancies. In a case reported by von Franqué there were numerous patches of fibrous degeneration in the placenta; the patient was a woman of 38 with chronic nephritis and the fetus had died just before term in 3 previous pregnancies. She was kept under constant supervision during the 2 weeks before term and after a week the fetal heart sounds were found to be growing weaker, so he punctured the membranes and followed this in less than an hour with vaginal Cesarean section. The child was of normal size but weighed only 2,850 gm., evidently having suffered from insufficient nourishment, but has since developed normally. In another case, he delivered with the inflatable bag under much the same conditions. The pathologic findings in the placenta were not so pronounced in this case, but there was evidently a reaction to some irritating process. He declares that artificial premature delivery just before term as indications arise in these cases of habitual fetal mortality is a thoroughly scientific procedure, most gratifying in its outcome.

138. Treatment of Sciatica with Epidural Injections.—Mum applied the perineural technic, that is, injection around the nerve of an anesthetic or saline solution, in 25 cases of sciatica and the results were generally good. In 3 cases, however, no effect was obtained, and he has since used Cathelin's epidural technic and found it even more satisfactory. It was described at length in *THE JOURNAL*, July 13, 1901, page 150. The fluid is injected into the spinal canal through the lower median sacral foramen, the needle having to pierce only the sacrococcygeal ligament. The ligament once pierced, the needle is turned to point toward the cauda equina above. After injection of from 5 to 10 c.c. of salt solution, improvement of the sciatica is evident at once, very rarely the delay is 24 hours after the injection. In a few persistent cases he had to repeat the injection 3 or 5 times at intervals of 2 or 3 days before a complete cure was realized. The effects were always at least as good and as permanent as with the perineural injections, while the epidural technic is not painful, he says, and has never induced fever or untoward by-effects in the thousands of cases in which it has been used to date. This cannot be said of the perineural technic; he observed peroneus paresis in 2 cases after the perineural injections and others have reported similar experiences. Another advantage of the epidural technic is that it acts on other nerve tracts as well as on the sciatic; the single injection banishes pain in the sacrum and femoral nerve, while with the perineural technic each nerve has to be treated separately. The epidural injections have also been successfully applied to relieve the pain from compression of nerve roots by a cancer in the spine, to relieve the gastric and bladder crises in tabes and in lead colic and to cure nocturnal enuresis.

145. Nephritis with Exophthalmic Goiter.—Graupner relates a number of experiences and arguments which demonstrate that hyperplasia of near lymphatic organs is liable to develop in consequence of the progressive hyperthyroidism and thyroid intoxication, this hyperplasia being most evident in the thymus, lymph glands, in heteroplastic lymphomas in the thyroid itself or in the spleen and bone marrow. There may be a toxic nephritis characterized by necrosis of the epithelium; its development is favored by operative intervention on the thyroid as in the 2 cases reported in detail in which the patients succumbed in 18 and 26 hours after the operation. There was pronounced status lymphaticus in both cases and recent destructive nephritis.

Virchows Archiv, Berlin

August, CCL, No. 2, pp. 161-320

- 146 Kidney Tumors. (Untersuchungen über Nierengeschwülste.) M. Zehbe. Commenced in No. 1.
- 147 Cause of Specific Action of Mercury. (Die Grundwirkung des Quecksilbers.) G. Friebatsch.
- 148 Fatal Burns. (Beitrag zur Kasuistik der lokalen und allgemeinen Veränderungen beim Tode durch Verbrennung.) Raysky.
- 149 Microscopic Composition of the Exudate with Tuberculous Otitis Media. G. de Bernardinis.
- 150 Regeneration after Tuberculous Intestinal Ulceration. (Regeneration des Darmepithels und der Lymphknoten Krypten an tuberkulösen Darmschwülen.) R. Améonimira.
- 151 Regeneration after Ulcers. (Die Regeneration des oberflächlichen Runnerschen Drüsen in H. J. Helmholtz.

- 152 Local Amyloid of the Thyroid. (Lokales Amyloid der Schilddrüse.) E. Stoffel.
- 153 Inflammatory Tumors of the Salivary Glands. (Ueber die entzündlichen Tumoren der Speicheldrüsen.) H. Thaysen.
- 154 Multiple Subperitoneal Serous Cysts of the Uterus. B. Huguenin.
- 155 Intracellular Nerve Network in Tumor Cells. (Das Goldsche Blannetz in Geschwulstzellen.) E. Savagnone.
- 156 Malignant Suprarenal Tumor. (Zur Kenntnis bösartiger Nebennierengeschwülste.) E. Lasagna.
- 157 Hypophysis Tumor Without Acromegaly. M. Moskalow.
- 158 Sarcoma in Spinal Dura Mater. (Sarkom der Dura mater spinalis und dessen Dissemination im Meningealraum mit diffuser Pigmentation der Leptomeningen.) K. Kawashima.

Wiener klinische Wochenschrift, Vienna

August 11, XVIII, No. 32, pp. 1171-1192

- 159 Period of Incubation in Serum Sickness. (Ueber Inkubationszeit.) F. Hamburger and R. Pollak.
- 160 The Content of the Duodenum and Its Clinical Importance. (Ueber menschliche Duodenallithen mit statistischen Vergleichstabellen zu seiner klinischen Beurteilung.) M. Gross, G. Goleb and M. Rosenberg (New York).
- 161 Tests of Pancreas Functioning. (Ueber die wichtigsten neuen Untersuchungsmethoden zur Prüfung der Pankreasfunktion.) L. R. v. Korczynski.

Zeitschrift für Geburtshilfe und Gynäkologie, Stuttgart

LXVI, No. 1, pp. 515-751. Last indexed August 6, p. 513

- 162 Curative Action of Laparotomy for Tuberculous Peritonitis. (Curative Action of Laparotomy for Tuberculous Peritonitis.) F. Heumann.
- 163 The Local Tuberculin Reactions in Pregnancy and Puerperium. (Systematische Untersuchungen über die lokalen Tuberkulinreaktionen in der Schwangerschaft und im Wochenbett, und Schlussfolgerungen hinsichtlich der Diagnostik und Prognosestellung.) R. Stern.
- 164 Two Cases of Cesarean Section with Unusual Complications. A. Stitzinger.
- 165 Racemose Vaginal Cancer in Children. (Zur Kenntnis der fröhlichen bösartigen Geschwülste der kindlichen Scheide.) C. Knoop.
- 166 The Full Bath a Source of Infection for Parturients. (Das Bad ist eine Infektionsquelle.) W. Haimes.
- 167 Pannonsch's Technique for Wedge Resection of the Uterus. (Die Pannonsche Kollrektomie des Uterus.) O. v. Langue.

162 Curative Action of Laparotomy in Peritoneal Tuberculosis. Heumann states that 36 women with tuberculous peritonitis have been laparotomized at Küstner's clinic in the 10 years ending in 1908. All were much improved or cured by the operation, and 15 have been recently reexamined. Fully 54 per cent seem to be in perfect health at present, good testimony as to the curative value of a laparotomy in these cases. In 2 other cases Heumann had occasion to laparotomize women who had been operated on elsewhere years before for peritoneal tuberculosis, and he found that the tuberculous lesions had completely healed. The aspect was the same as that in guinea-pigs after complete recovery from experimental tuberculous peritonitis. The peritonitis in his cases was of the serous type and the laparotomy was made as soon as the trouble was diagnosed. Concomitant lung lesions seemed to be benefited by the operation at the same time as the peritoneal. The abdomen was merely opened and the ascites evacuated; no attempt was made to rinse out the abdominal cavity and the adnexa were left undisturbed, even when there was reason to suspect a tuberculous lesion in them. One of the women has passed through a normal pregnancy since. He lays great stress on his routine practice of systematic tuberculin treatment commenced the seventh day after the laparotomy, the course being kept up by the family physician after the patients leave the hospital.

165 Vaginal Racemose Sarcoma in a Child.—Knoop's little patient was a girl of 3 and the racemose sarcoma recurred in 6 months and again 3 months after the second operation, after which the child died. He reviews the similar cases on record, insisting that discovery of heterologous elements even in an apparently simple vaginal polyp in a child should compel removal of the entire genital apparatus by Wertheim's carcinoma technic, even in very young children. Malignant growth in the child vagina are of a different nature from those in adults and require still more energetic measures.

Zeitschrift für Urologie, Berlin

August, IV, No. 8, pp. 561-610

- 168 Case of Cystic Dilatation of an Accessory Ureter. S. P. von Fodorow.
- 169 Further Research on the Physiology and Pathology of the Prostate. J. P. Haberer and A. Makal.
- 170 Gonorrheal Infection and Genesis of Accessory Passages in the Penis. C. Gutmann.

Zentralblatt für Chirurgie, Leipsic*August 13, XXXVII, No. 33, pp. 1073-1112*

- 171 *Treatment of Exstrophy of the Bladder by Making a Receptacle for the Urine out of the Lower Cecum, Utilizing the Appendix for the Urethra. (Zur Behandlung der Blasenektomie.) M. Makkas.
- 172 Technik für Laminektomie für Treatment of Spinal Cord Tumors. (Zur Technik der Laminektomie in der Behandlung von Rückenmarkstumoren.) Röpke.

171. Treatment of Exstrophy of the Bladder.—Makkas cut off the lower part of the cecum, making a closed bag of it, in which he implanted the ureters. He then drew the appendix out through the skin below to serve as an outlet for the urine accumulating from the ureters in the new reservoir formed by the cecum bag. The patient was a girl of 12 with typical exstrophy of the bladder and atresia of the vagina. The capacity of the new reservoir is over 300 c.c. and the child wears a retention catheter to date. The cecum was prepared for exclusion and implantation of the ureters by 10 days of sterilization. This technic avoids the great drawback of the Maydl technic, namely, mixture of feces with the urine, and thus all danger of ascending infection of the kidneys is obviated. With perfected technic, he adds, it may be possible to insure continence without the necessity for a retention catheter. The article is illustrated.

Zentralblatt für Gynäkologie, Leipsic*August 13, XXXIV, No. 33, pp. 1105-1128*

- 173 Operations on the Uterus for Myoma and Disease in the Adnexa. K. M. Eisenstein.
- 174 *Recurring Extra-Uterine Pregnancy. (Wiederholte Extra-uterin-Gravidität.) G. Siefert.

174. Repeated Extra-Uterine Pregnancy.—Siefert has had a second extra-uterine pregnancy occur in 1 out of his 25 cases during the last 10 years and a second case is suspicious. This percentage of recurring ectopic pregnancies and the similar small numbers encountered by others, render it unnecessary to take measures to prevent future pregnancies when operating for extra-uterine pregnancy, which some have advocated. In 3 of his 25 cases the women have passed through normal pregnancies and deliveries since the operation for the extra-uterine pregnancy.

Gazzetta degli Ospedali e delle Cliniche, Milan*August 11, XXXI, No. 96, pp. 1009-1016*

- 175 Inefficacy of Mercury in Surgical Tuberculosis. (Ancora della cura della tubercolosi chirurgica con i sali di mercurio.) E. Curti.

August 14, No. 97, pp. 1017-1032

- 176 Chondrectomy in Treatment of Pulmonary Emphysema. (L'operazione del Freund in alcune forme di enfisema polmonare.) M. Fasano.

Riforma Medica, Naples*August 1, XXV, No. 31, pp. 841-868*

- 177 *Pellagra. (Per la pellagra. Studio critico.) R. Campana.
- 178 *Transient Albuminuria a Favorable Sign after Laparotomy for Peritoneal Tuberculosis. (L'albumina transitoria nel periodo post-operatorio dei laparotomizzati per peritonite tuberculare come segno di prognosi favorevole.) F. Gangitano.

August 8, No. 32, pp. 869-896

- 179 Favorable Experiences with Carbon Dioxide Snow in Treatment of Tuberculosis. (L'efficacia e risultati del trattamento del "neve di anidride carbonica" negli angioni.) U. Noferi.

- 180 *On Influence of Fatigue on the Production of Immunity. (L'importanza dello strapazzo fisico nel meccanismo dei processi d'infezione e d'immunità.) D. de Sandro. Commenced in No. 31.

- 181 Operative Treatment of Potosis of the Liver. (Contributo alla cura operativa delle epatopotosi.) A. Cernezz.

- 182 *Anesthesia of the Eyeball in Nervous and Mental Diseases. (L'anestesia del bulbo oculare nelle malattie nervose mentali.) G. Vidone and S. Gatti.

179. Pellagra.—Campana protests against the assumption that there is only one single cause for pellagra.

178. Laparotomy for Peritoneal Tuberculosis.—Gangitano calls attention to the transient albuminuria which he noted in all the cases in which recovery followed the laparotomy, that is, in 7 out of the 12 cases of tuberculous peritonitis in which operative treatment was tried. In the 5 other cases the effusion returned, notwithstanding a second laparotomy in 2 cases. It seems evident that when the laparotomy modifies conditions to such an extent as to lead to a cure, albumin appears in the urine. The proportion was never large, amounting to 0.5 per thousand in only 2 of the cases. His patients were women and girls, between 14 and 49, and the tuberculous peritonitis was of from 4 months to 2 years' duration.

He merely opened the abdomen and wiped the peritoneum dry with sponges, not flushing it, following the laparotomy with injections of iodine-iodid solution according to Durante's technic, and 7 of the 12 patients have completely recovered.

180. Influence of Fatigue on Processes of Infection and Immunity.—De Sandro reports extensive research on dogs, rabbits and guinea-pigs injected with typhoid toxins after severe muscular strain. Under the influence of the chemical changes induced by the physical strain, the nervous exhaustion, fatigue of the heart and disturbances in the blood production, the defensive powers were evidently much weakened; phagocytosis was reduced and also the chemotactic power of the cells, the bacteriolysins, antitoxins, agglutinins and opsonins showing a marked falling off.

182. Anesthesia of the Eyeball in Nervous and Mental Disease.—Vidoni and Gatti pressed the eyeball down on the floor of the orbit seeking for a sign of organic nervous disease and found, in fact, that the pain which this induces in normal conditions was absent in the 2 cases of tabes in their series of 88 patients with various nervous or mental affections. The anesthesia of the eyeball was also pronounced in 2 insane adults. The anesthesia is probably due to some lesion in the sympathetic nervous system, they say, adding that it may aid in the early differentiation of tabes.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and, as space permits.

DIGEST OF COMMENTS ON THE PHARMACOPOEIA OF THE UNITED STATES OF AMERICA (EIGHTH DECENNIAL REVISION), AND THE NATIONAL FORMULARY (THIRD EDITION). For the Calendar Year Ending Dec. 31, 1907. By Murray Galt Motter and Martin I. Wilbert. Bull. 63, Hyg. Lab., U. S. P. H. and M.-H. S., June, 1910. Paper. Pp. 464. Washington: Government Printing Office, 1910.

HYDROTHERAPY. A Work on Hydrotherapy in General, Its Application to Special Affections, the Technic or Processes Employed and the Use of Waters Internally. By Guy Hinsdale, M.D., Secretary of the American Climatological Association. Cloth. Price, \$3.50. Pp. 466, with 145 illustrations. Philadelphia: W. B. Saunders Co., 1910.

DISEASES OF THE COLON AND THEIR SURGICAL TREATMENT. (Founded on the Jacksonian Essay for 1909.) By P. Lockhart Mummery, F.R.C.S., Jacksonian Prize-man and late Hunterian Professor, Royal College of Surgeons. Cloth. Price, \$3.25 net. Pp. 322, with 88 illustrations. New York: William Wood & Co., 1910.

PHYSICAL EXAMINATION AND DIAGNOSTIC ANATOMY. By Charles B. Slade, M.D., Chief of Clinic in General Medicine and Instructor in Physical Diagnosis in the University and Bellevue Hospital Medical College, New York. Cloth. Price, \$1.25. Pp. 146, with 36 illustrations. Philadelphia: W. B. Saunders Co., 1910.

DAWN OF THE FOURTH ERA IN SURGERY AND OTHER SHORT ARTICLES PREVIOUSLY PUBLISHED. By Robert T. Morris, M.D., Professor of Surgery in the New York Post-Graduate Medical School and Hospital. Cloth. Price, \$1.25. Pp. 145, with 6 illustrations. Philadelphia: W. B. Saunders Co., 1910.

LECTURES ON SURGICAL NURSING. By E. Stanmore Bishop F.R.C.S., Honorary Surgeon Ancoats Hospital, and Gynecological Surgeon, Jewish Memorial Hospital, Manchester. Cloth. Price, \$1 net. Pp. 143, with 9 illustrations. New York: William Wood & Co., 1910.

AIDS TO MICROSCOPIC DIAGNOSIS (BACTERIAL AND PARASITIC DISEASES). By Ernest B. Knox, M.D., Diplomate in Public Health (Honors), Royal Colleges of Physicians and Surgeons, Ireland. Cloth. Price, \$1 net. Pp. 156. New York: William Wood & Co., 1910.

DIFFICULT LABOR. A Guide to its Management for Students and Practitioners. By G. Ernest Herman, F.R.C.S., Consulting Obstetric Physician to the London Hospital. Cloth. Price, \$2.50 net. Pp. 547, with 180 illustrations. New York: William Wood and Co., 1910.

PRACTICAL OBSTETRICS. By E. Hastings Tweedy, F.R.C.P.L., Master of the Rotunda Hospital, and G. T. Wrench, M.D., Late Assistant Master. Second Edition. Cloth. Price, \$5.50. Pp. 491, with 159 illustrations. New York: Oxford University Press, 1910.

HISTORY OF MEDICINE. By Max Neuburger, Professor of Medical History in the Imperial University of Vienna. Translated by Ernest Mayfair, M.B. In Two Volumes. Vol. I. Cloth. Price, \$9. Pp. 404. New York: Oxford University Press, 1910.

PRACTICAL NURSING FOR MALE NURSES IN THE R. A. M. C. AND OTHER FORCES. By Major E. M. Hassard, R.A.M.C., and A. R. Hassard. Cloth. Price, \$1.50. Pp. 334, with illustrations. New York: Oxford University Press, 1910.

FACTS AND PROBLEMS OF RABIES. By A. M. Stimson. Bull. 65, Hyg. Lab., U. S. P. H. and M.-H. S., June, 1910. Paper. Pp. 90, with illustrations. Washington: Government Printing Office, 1910.

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A CASE OF DIFFUSE, PURULENT, VENTRICULO-SEPTAL MYOCARDITIS WITH ADAMS-STOKES' SYNDROME*

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The subject of suppurative myocarditis has received some attention from ancient writers, since Whittaker¹ states that Galen described this malady in gladiators and Benevenus and Bonetus have also described abscesses in the walls of the heart. Later, Laennec and Meckel cited similar cases.

These cases of suppurative myocarditis are called "myocarditis purulenta" by Aschoff,² who shows that they are usually produced by ulcerative endocarditis, intracardiac thrombosis, pericarditis and septic infarction and abscess formation in cases of general pyemia. It will be seen that these purulent infiltrations or abscesses in the heart muscle are secondary processes caused by an antecedent infection. The case we shall later describe is a primary condition and cannot, therefore, be compared to the above mentioned processes.

The condition known as acute interstitial myocarditis, which follows such infectious diseases as diphtheria, scarlet fever and rheumatism, first described by von Haven,³ also differs from our case, since it is characterized by an infiltration of lymphocytes, plasma cells and fibroblasts, while the polymorphonuclear leukocytes are absent.

Before describing our case in detail we wish to cite a case of acute purulent interstitial myocarditis following subacute rheumatism which was described by Freund⁴ in 1898.

This patient had a frequent pulse, a rise of temperature, precordial pain and delirium. The autopsy showed a flabby heart containing yellow dots and lines, and the microscopic examination revealed a diffuse inflammation with polymorphonuclear leukocytes combined with scattered hemorrhages. The blood-vessels were filled with leukocytes and the small veins contained thrombi. The muscle fibers contained vacuoles; the nuclei were elongated, thickened, fragmented and at times absent, and the cross-striations were often obscure, while the individual fibrils seemed separated one from another. Toward the endocardium they showed fatty degeneration.

The above case is the only one we have been able to find in literature of a true, diffuse, interstitial, purulent myocarditis, but we have collected a few typical instances of circumscribed abscess formation in the heart muscles. Carnas⁵ states that abscesses of the walls of the heart have been most frequently observed in pyemia and ulcerative endocarditis. In certain cases there are remissions followed by relapse which give a subacute or chronic character to the disease. Laking⁶ describes a case of many months' illness with sudden death, which showed two long-standing abscesses in the apex of the left ventricle, and Roth⁷ has shown that these abscesses may undergo calcareous transformation. Chance⁸ and Howitt⁹ both report abscesses of the heart in children, and nine out of ten cases occur before the thirtieth year. Formad¹⁰ reported a case of abscess of the heart about the size of a large bean with accompanying purulent myocarditis, and it is interesting to note that this condition may develop from a circumscribed abscess. Banks¹¹ also has described an abscess the size of a pigeon's egg in the left ventricle.

Abscess of the heart follows pyemia or septic endocarditis and is characterized by angina-like symptoms, dyspnea, gallop rhythm, dicrotic pulse and temperature, and Loin¹² states that this condition may be distinguished from septic endocarditis by a more rapid pulse in the former condition.

The association of heart-block with infectious diseases has recently been established. The few cases thus far reported have been reviewed by Peabody,¹³ who reports an additional case. Some of the patients recovered. Autopsies have revealed various lesions of the bundle of His, such as anemic necrosis of the muscular septum in the region of the bundle, cellular infiltration, fibrous degeneration with a calcareous nodule pressing on the bundle; and James¹⁴ has reported a case in which the bundle of His was completely destroyed by an ulcer in the interventricular septum due to a streptococcus septicaemia.

Other conditions which may produce heart-block and Adams-Stokes' syndrome are syphilitic gummata and scar formation, calcareous deposits, fatty infiltration, septic and benign infarction and fibrous tumor of the

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Whittaker: Twentieth Century Practice of Medicine, 1905, iv, 127.

2. Aschoff: Pathologische Anatomie, Jena, 1909, II, Special Part.

3. Von Haven: Arch. de physiol. norm. et path., 1869-70, III, 81.

4. Freund: Berl. klin. Wchnschr., 1898, xxxv, 1077, 1106.

5. Carnas: Myocardite primitive suppurée du septum, Loire méd., 1892, xi, 113, 120.

6. Laking: Saint George's Hosp. Rep., 1875, vii, 361; Rev. d. sc. méd., 1876, I, 589.

7. Roth: Cited by Ziegler, Lehrbuch der speciellen pathologischen Anatomie, Jena, 1887.

8. Chance: Lancet, London, May 16, 1846, p. 548.

9. Howitt: Lancet, London, June 20, 1846, p. 684.

10. Formad: Tr. Path. Soc. Philadelphia, 1891-3, xvi, 80.

11. Banks: Proc. Path. Soc., Dublin, 1852-53, p. 27.

12. Loin: Ann. Soc. d'anat. path. de Bruxelles, 1880-81, Bull. 30, p. 31.

13. Peabody, F. W.: Heart-block Associated with Infectious Diseases, Arch. Int. Med., 1910, v, 252.

14. James: Am. Jour. Med. Sc., 1908, cxxxvi, 469.

bundle of His, as we have already described in a former article.¹⁵

We regret that we were unable to obtain any pulse tracings in the case the report of which follows, but the patient was under observation only for several days in the hospital, during which time the sphygmograph was being repaired. Nevertheless, we are convinced that he suffered from heart-block with Adams-Stokes' syndrome. The case is unique because of its association with the rare condition of primary purulent myocarditis.

CASE REPORT

CLINICAL HISTORY

Patient.—J. C., a man aged 67, by occupation a street-cleaner. His history is unimportant. In early childhood he had measles, scarlet fever and mumps. Apart from these maladies he enjoyed remarkably good health until his thirtieth year, when he contracted syphilis. He developed the usual characteristic secondary symptoms, for which he received several months' treatment. He was always employed at heavy, laborious work. In his earlier days he was strongly addicted to the use of alcohol, mostly in the form of whisky. For the past twenty-five years he drank more moderately.

Present Illness.—He continued in good health until seven months before his admission to the Mercy Hospital. At this time he began to have vertigo and syncope with epileptiform seizures. These attacks came on abruptly, frequently without premonition, at other times with a brief aura, consisting of a sense of smothering, scotoma and tinnitus aurium. The patient sank rapidly into a state of semiconsciousness, which was followed by clonic spasms of the facial muscles on the right side and tingling and formication in both upper extremities. Other associated symptoms were vasomotor disturbance, oppressive sensation in the epigastrium, with pain which radiated to both arms, and intense dyspnea. The entire seizure lasted only a few minutes. These attacks came on very frequently. They were usually single, but sometimes five or six followed in close succession; excitement or physical exertion had a tendency to produce them. For this reason the patient had been unable to follow his vocation for the past seven months. Three months after the onset of the attacks a cough developed, which was accompanied with a slight expectoration. Dyspnea on slight exertion became an annoying symptom. Later he noticed enlargement of the veins in his legs, which subsequently became varicose. There was no edema. He had a constant feeling of pressure in his epigastrium and dyspeptic symptoms were marked. On March 25, 1910, on the advice of his physician, Dr. C. F. Blake, he was sent to the hospital.

Physical Examination.—This revealed the following condition: The patient looks fairly robust, is well developed and in a good state of nutrition. Mentally he is apathetic, inclined to stupor and talks incoherently, but, when aroused he appears nervous and apprehensive and responds readily to inquiries in a perfectly rational manner. The face is pale, the lips slightly cyanosed and the conjunctivæ anemic and injected. The pupils are equal and react sluggishly. The tongue is coated and flabby with marginal indentation. The mucous membrane of the tongue and buccal cavity show a slight degree of cyanosis. There is a small patch of alopecia of the scalp, and the hair and eyebrows come out readily. The jugular bulbs and the superficial veins of the neck are distended and pulsate. The chest is somewhat emphysematous in type. Breathing is irregular and, at times, Cheyne-Stokes in character. Percussion of the lungs shows hyperresonance over the anterior and lateral aspects of the chest and over the upper half posteriorly. The bases of both right and left lung are moderately dull. Fremitus is generally decreased. On auscultation emphysematous breathing is heard over the entire chest and a few dry scattered râles are heard.

Heart: The maximum apex impulse is in the fifth interspace at the mammillary line. There are no abnormal areas of pulsation. Relative cardiac dullness extends 1.5 cm. to right

of the right sternal border and the distance from the mid-sternal to the left border at the apex measures 9 cm. Dullness begins above at the lower border of the second rib. There are no cardiac murmurs at the apex; both sounds are clear and distinct. The first sound, however, is not entirely normal, as it lacks the so-called booming quality which is a distinctive feature of the mitral systolic sound. The aortic and pulmonary first sounds are almost inaudible. A reduplication of the second sound is heard at the aortic and pulmonary areas, and also at an area corresponding to the junction of the fourth interspace and left sternal border. Bradycardia is pronounced and the cardiac rhythm is fairly good. There are from 44 to 46 apex-beats per minute, while there are from 88 to 94 jugular pulsations, denoting practically a 2 to 1 rhythm. The radial pulse is likewise slow (46 per minute), but the rhythm is good and pressure is minus. The ratio between the auricular and ventricular systole is disturbed when the patient exercises.

The blood-vessels are somewhat thickened, but no more so than one would expect to find in a man of the patient's age. With the exception of double inguinal hernias the abdominal examination is negative. The superficial veins of the lower extremities are engorged. Reflexes are not disturbed. There is a slight enlargement of the cervical and inguinal glands.

Urine: Specific gravity, 1.013; traces of albumin; otherwise negative.

Course of Disease.—March 28: The patient had several seizures during the night, following each other in close succession, and to-day he appears exhausted and drowsy. He has Cheyne-Stokes breathing and voids large quantities of urine.

March 29: Slept well during night and shows a general condition of improvement. Radial pulse is fairly regular but slow. Jugular pulse well marked. Two pulsations occur to one radial.

March 30: Radial pulse, 43; jugular, 86. Forced exercise in bed produced an acceleration of the venous pulse to 98, but had no effect on the radial pulse. The following records taken during the day show the relation between the radial and jugular pulses:

Time.	Radial.	Jugular.	Time.	Radial.	Jugular.
9:30 a. m.	48	99	12:00 m.	46	94
10:00 a. m.	46	84	12:30 p. m.	44	90
10:30 a. m.	50	104	1:00 p. m.	48	96
11:00 a. m.	48	98	1:30 p. m.	42	90
11:30 a. m.	52	90	2:00 p. m.	50	98

March 31: Patient felt comfortable during the early part of the night, but later in the night he ventured out of bed and was found in the toilet with an acute paroxysm. He had another paroxysm shortly after returning to bed, from which he quickly recovered. Several hours later he was found dead in bed.

During his entire stay in the hospital the patient's temperature was normal.

GENERAL AUTOPSY REPORT

Body Section.—Lungs show some edema and congestion. Pericardial sac filled with a bloody fluid. Heart somewhat enlarged. Arteries show some sclerosis. Liver about normal in size, but showed chronic passive congestion. Spleen normal. Right kidney much enlarged and several small cysts on its surface filled with a watery fluid. Left kidney enlarged and both showed chronic nephritis. Stomach showed marked congestion and acute gastritis.

Owing to an unfortunate accident no microscopic sections were made from the viscera, other than the heart, but it may be taken for granted that there was no acute purulent condition present and that the sections would have shown only a chronic nephritis and an acute congestion of the gastric mucous membrane.

Bacteriologic Examination.—No cultures were made, but stained specimens showed a few pneumococci in the purulent areas of the heart muscle.

EXAMINATION OF HEART

The heart is somewhat enlarged, weighing 450 gm. The measurements are as follows: Thickness of left ventricle midway 18 mm.; length of left ventricle 8.5 cm.; aorta, just above valves 8 cm. in circumference; interventricular septum 9 mm.

15. Beck and Stokes: A Clinical and Pathologic Study of a Case of Adams-Stokes Disease. Arch. Int. Med., 1908, li, 277.

thick. Right side of heart: right ventricle 8 mm. thick; length of right ventricle 8 cm.; pulmonary artery just above valve 5.5 cm.

The papillary muscles of the right and left ventricles are flattened. The heart muscle is reddish brown in color, and, on cutting through the interventricular septum, near the auriculo-ventricular septum, fine yellowish streaks can be seen. On making a flat section of the muscle of the left ventricle opposite the interventricular septum, small grayish streaks and small reddish dots are apparent in the muscular substance which has been laid open. The valves are normal. The aorta contains a few small yellowish plaques just around the entrance of both coronary arteries, and there are numerous smaller plaques scattered over the intima of the rest of the aorta.



Fig. 1.—Heart, showing the situation of the various blocks from which the sections were made. These are numbered as in the text. These blocks of tissue were cut out of the heart in order to obtain cross-sections of the bundle of His.

Coronary Arteries.—Both coronary arteries were dissected out to the ramification of their finest branches, and the general condition is as follows:

Left Coronary Artery: The main artery, the left descending branch and the circular branch all contain numerous bulbous thickenings, giving the artery an irregular, beaded or nodular appearance. To the touch, the entire artery is much firmer and harder than normal, and the irregular miniature sausage-shaped nodules have the feel of hard bony tubes. A fine probe measuring 1 mm. in thickness can be passed through the circular branch and also through the descending branch to a distance of 6 cm., but the lumen is evidently narrowed, as the probe passes with difficulty. On opening the artery, the intima is seen to contain numerous irregular yellowish elevations, most of which contain a soft pultaceous yellow material, or a much firmer calcareous deposit forming thick plates.

Right Coronary Artery: This artery does not show the same nodular condition, but presents rather a general indurated, cord-like, leathery feeling. On opening up the artery, there are a few small yellowish plaques containing a soft, pultaceous, yellow, cheese-like material, but there are no calcareous deposits. The intima seems universally thickened, presenting a firm, tough, thickened tissue. A probe 1 mm. in thickness passes 4 cm. through the main artery, where it is abruptly stopped by an adherent thrombus which extends for a distance of 3 cm. in the descending branch supplying the right ventricle.

Histopathology.—Before describing the microscopic changes present in the heart, it is necessary to describe the situation of the various blocks of tissue from which the sections are made, and this can best be explained by referring to the photograph of the heart which is seen in Figure 1.

Section 1 was made from a block of tissue bounded to the left by the endocardium of the left ventricle, to the right by the endocardium of the right ventricle, and above and below, by the fibromuscular wall of the auricular septum. The section, therefore, passes from above downward directly through the center of the fossa ovalis, and includes the muscular structure of the auricular septum for a considerable distance below the fossa. It, therefore, would show a cross-section of any of the rootlets of the bundle of His, taking their origin from the region of the septum. The area formerly occupied by this block of tissue is indicated by the number 1 which will be found within the limits of the first set of white lines.

Sections 2, 3, 4, and 5, were made from blocks of tissue which include the horizontal course of the bundle of His, showing, therefore, cross-sections of the bundle. They form triangles whose apices are represented by a point just above the auriculoventricular fibrous ring, and whose sides are formed by the endocardium of the right and left ventricles. The bases are formed by lines passing from the left to the right ventricle directly through the interventricular septum. The situation of these blocks is indicated in Figure 1 by the numbers mentioned above, and their distal planes are designated by the white lines.

Sections 6, 7, 8 and 9 are made from blocks which follow a line perpendicular to the apex, which begins at the base of the last section, and ends at the apex. These blocks pursue the general course of the two branches of the bundle of His for the right and left ventricle, and the sections, therefore, show these branches in an oblique or horizontal plane. The white lines show the distal limits of each block, while the numbers show the situation of these blocks.

Sections 10, 11, 12 and 13 are taken from blocks which pursue a gentle curve around the very limits of the auriculo-

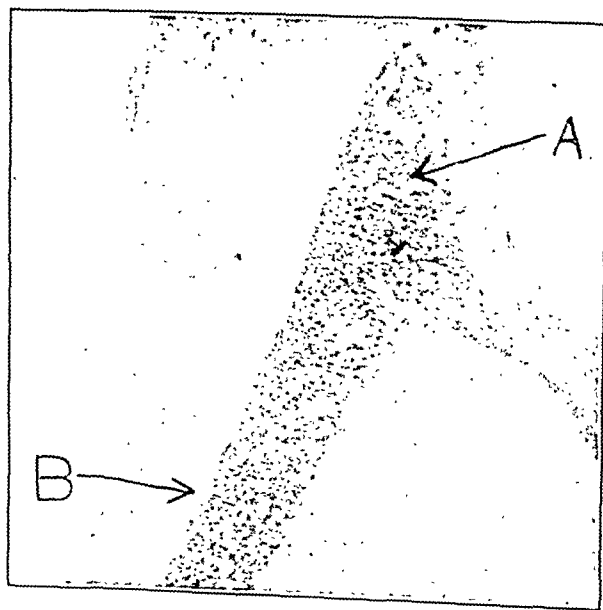


Fig. 2.—Cross-section of the bundle of His at A, in which there were numerous hemorrhages. The auricular septum is above and the ventricular septum below, the bundle running in a groove between its two septa. The thick bundle passing down to the left is the endocardium for the right ventricle and the thinner branch nearer the endocardium is the branch for the left ventricle.

ventricular septum adjacent to the apex, and they end at the very tip of the apex of the heart. They are numbered by black figures, and the black lines indicate the limits of each block of tissue.

Microscopic Examination.—No. 1: This section, passing through the muscles of the auricular septum, the fossa ovalis and the lower portion of the auricular wall, shows a few strands of the bundle of His, taking their origin from the thin wall of the fossa. The nuclei are larger than the rest of the heart muscle, and the muscle fibers are separated at

surrounded by a connective tissue containing many fibroblasts, lymphocytes and a few polynuclear leukocytes.

No. 2: This is a section through the proximal end of Segment 2, showing the auricular septum, the ventricular septum and the auriculoventricular groove containing the bundle of His. The bundle of His and the connective tissue around it are infiltrated by many polynuclear leukocytes. The muscular structure of the ventricular septum, especially that near the endocardium of both ventricles, presents a remarkable appearance. There is a diffuse purulent infiltration of the muscles separating individual fibers or groups of fibers. Many of the fibers show necrosis, and there are also groups of leukocytes which show much nuclear fragmentation. Other groups of leukocytes form elongated abscesses.

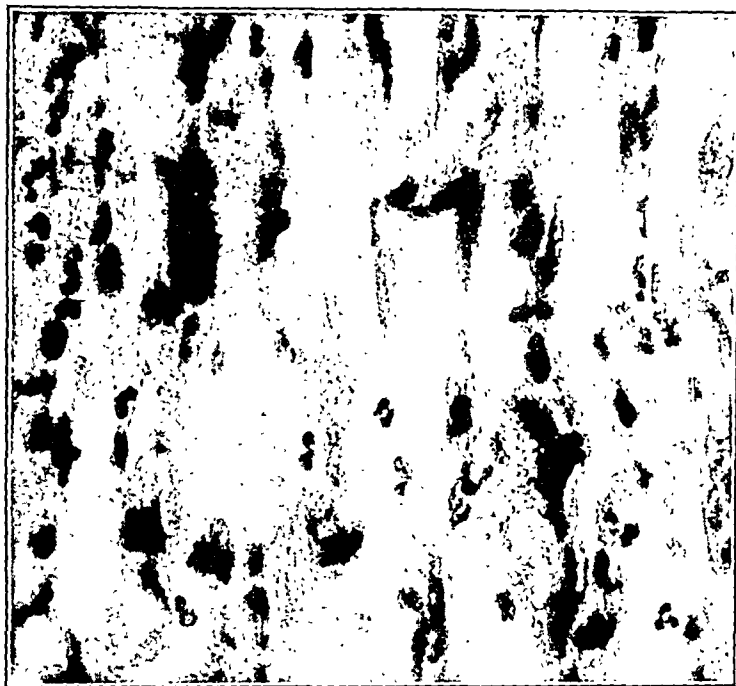


Fig. 3.—From a photomicrograph taken at B in Figure 2. It shows diffuse purulent infiltration, fragmentation, atrophy and hyperchromatosis of the nuclei of the heart muscle.

No. 3: Conditions are practically similar to those found in No. 2.

No. 4: This shows the thin connective tissue septum of the auricle with many connective tissue cells but no muscle fibers. Below the septum in the auriculoventricular groove, the bundle of His can be distinctly seen, together with its branches for the right and left ventricles. The central bundle itself contains many scattered hemorrhages, and the branches for the right and left ventricle soon become involved in the general purulent infiltration, described above. This purulent infiltration can also be seen scattered in certain areas throughout the entire septum, and these areas show intense granular degeneration of the muscle fibers. The purulent infiltration is much more intense just beneath the endocardium of both ventricles, and this infiltration often forms a network between the muscle bundles of degenerated necrotic muscle fibers. The branching of the bundle is well seen in Figure 2.

No. 5: In this section the central bundle has apparently disappeared but the left branch is still visible, and at some distance from the bifurcation, it shows moderate purulent infiltration. There is also marked purulent infiltration of the entire septum in the lower half of the section, especially towards the endocardium of the right ventricle.

No. 6: This section is made from a series of blocks which are perpendicular to the apex and which follow the general course of the two bundles of His, as they course downward in the ventricular septum towards the apex. It is impossible to locate the cross-section of any particular bundle of muscle fibers which would correspond to either of the branches of the bundle of His, and there is no marked purulent infiltration of the muscle in this section. The thickened endocardium shows a slight infiltration with polynuclear leukocytes

and lymphocytes, and there are a few similar groups of cells scattered through the section. There are areas of hemorrhages scattered through the muscular structure, and the blood-vessels are crowded with leukocytes and lymphocytes.

No. 7: This section shows areas of intense hemorrhage together with coagulative necrosis of the muscle fibers, and there is an increase of connective tissue elements between the muscle bundles, indicating a beginning chronic interstitial myocarditis, and some of these areas of coagulative necrosis show marked nuclear fragmentation.

No. 8: In this section through a plane which is nearer the apex, there are, again, areas of marked purulent infiltration with necrosis of the muscle fibers. There is also some chronic interstitial myocarditis and scattered hemorrhages.

No. 9: This ends the series made from blocks approaching the area of the apex, and the conditions are similar to those described in No. 8. A section through several large papillary muscles fails to show any purulent infiltration, but the intense congestion of the capillaries in certain areas of the heart muscle is marked.

No. 10: This section is taken from the first of a series of blocks which pursue a gentle curve around the limits of the auriculoventricular septum ending at the apex. The heart muscle shows extensive necrosis, numerous hemorrhages and congestion of the capillaries, and there is slight, scattered purulent infiltration. The numerous papillary muscles do not show any abnormal changes. A branch of the coronary shows a greatly thickened intima containing numerous connective tissue cells.

No. 11: This tissue shows extensive areas of necrosis and hemorrhages, and these areas are infiltrated by small mononuclear lymphocytes, singly or in groups, and the blood-vessels also contain increased number of lymphocytes.

No. 12: This section is principally marked by extensive areas of hemorrhage and some chronic interstitial myocarditis.

Summary.—It will be seen by reference to Figure 1, that the sections are taken from blocks beginning at the fossa ovalis



Fig. 4.—Area of necrosis with intense nuclear fragmentation and purulent infiltration at A. At B the general purulent infiltration is seen, and at C this purulent infiltration pursues a linear course between the individual muscle fibers.

in the auricular septum, and describing a semicircle passing outward along the horizontal course of the bundle of His, then downward through the ventricular septum, and finally describing a gentle curve, the semicircle ending at the very tip of the apex.

There were no pathologic changes found in that portion of the auricle from which the bundle of His takes its origin. But after the bundle has entered the auriculoventricular groove, it is beset by numerous hemorrhages, and its two branches show moderate purulent infiltration. The rest of the muscular structure of the septum shows marked purulent infiltration in the linear areas beneath the endocardium of

both of the ventricles and in scattered masses throughout the tissue. There is also marked arterio-sclerosis.

Sections From Other Portions of the Heart.—In addition to those described above, sections were made from various other portions of the heart in order to study the extent of the purulent infiltration and the condition of the blood-vessels.

Those of the first set were made from the left auricular appendix, the septum between the auricles, the wall of the right auricle and the muscui pectinati of the right ventricle. The left auricle shows no abnormal changes, but the wall of the right auricle with its muscui pectinati shows a few polynuclear leukocytes in single rows, or small groups, and the nuclei of many of the muscle fibers are shrunken and irregular in size and shape.

Another set of sections was made from the wall of the left ventricle at the left apex, from four separate areas in this wall opposite the septum, and running from the base to the apex, through the papillary muscles, and from the interventricular septum. The first section near the apex shows an adherent antemortem clot attached to the endocardium by means of fibrin. There are many endothelial cells and fibroblasts entering this fibrin in an attempt at organization, and the endocardium is thickened and infiltrated by leukocytes, red blood-corpuscles and fibroblasts. The clot contains masses of fibrin and polynuclear leukocytes and fibroblasts. The muscle fibers next to the endocardium contain numerous large vacuoles, only a mere shell remaining, and the nuclei are frequently shrunken. There is no diffuse purulent infiltration. The five sections from different portions of the left ventricle opposite the septum do not show any marked changes, but the muscle fibers of the papillary muscles near the endocardium show vacuolization. The septum at the apex shows no marked changes, except fatty infiltration near the pericardial surface.

The right coronary artery 6 mm. from the mouth of the aorta shows an interesting condition. The intima is greatly thickened, measuring from 2 to 10 times the thickness of the media adjacent to it, which shows marked atrophy. It contains a moderate number of fibroblasts and two large irregular areas of calcareous deposits. The lumen is completely occluded by a thrombus consisting mainly of red blood-corpuscles and fibrin, but containing groups of organizing fibroblasts and a few polynuclear leukocytes. This thrombus is adherent to the intima from which the endothelium has become detached. A smaller branch of this coronary artery also shows the same thickened intima, and the lumen is reduced to a small irregular channel. The adventitia contains numerous fibroblasts filled with small brown granules of blood pigment, and the muscle fibers of the media show great atrophy. The intima contains scattered polynuclear leukocytes, granular masses of lime salts, and fibroblasts. The same artery nearer the aorta also contains an adherent thrombus of the intima, and shows great thickening of the intima and, just where this is attached to the thrombus, it is highly infiltrated by leukocytes.

SUMMARY

The clinical history of this case indicates that the patient had been suffering from syncopal attacks for a period of seven months. It is difficult to account for these earlier attacks unless we can believe that there were recurrent purulent infiltrations of the bundle of His with damage to the muscle fibers. We found no other lesions of the bundle of His and can only report the patient's condition for about a week prior to his death, together with the discovery of an acute primary purulent infiltration involving the bundle of His.

We desire to thank Dr. H. W. Stoner for the photograph and photomicrographs, and Dr. J. J. O'Malley for assistance rendered.

214 East Preston Street.—1639 North Calvert Street.

Bromids in Confirmed Epilepsy.—W. A. Turner, in the *Lancet*, states that in cases of confirmed epilepsy with mental deterioration the bromids are of relatively little value.

A STUDY OF A CASE OF HEART-BLOCK

WITH ALTERNATION OF THE SYSTOLIC AND DIASTOLIC JUGULAR WAVES*

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So much has been written in the past few years about heart-block that the report of a single case can no longer be considered worth while. My reason for reporting the present case is that it presents a feature which, so far as I can learn, has not yet been described. It is apparent from the wide diversity of symptoms and of tracings in the cases constantly being reported that not all cases of heart-block are alike and there is certainly much still to be learned about the clinical picture the disease presents. Each case recording some new point adds to the sum of our knowledge.

Briefly stated, the phenomenon essential to the diagnosis of heart-block is the dissociation of the rates of pulsation of the auricles and ventricles. This is generally attributed to an affection of the bundle of His along which travels the stimulus from auricle to ventricle. The block may be complete, in which case the auricular and ventricular rates are entirely different; or it may be partial, as in my case, when some of the auricular stimuli pass through to the ventricles. The

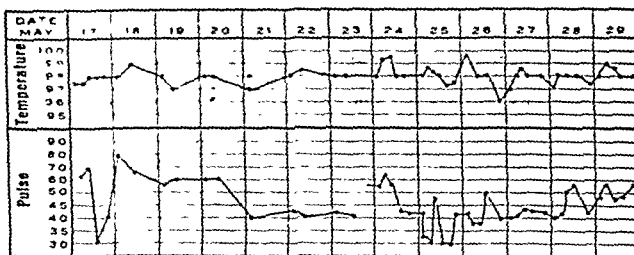


Fig. 1.—Showing the variation in the pulse; record taken every four hours.

peculiar feature which my patient presented in addition was an alteration of the systolic wave, (*v*), and the diastolic wave, (*h*), appearing in the jugular pulsations.

REPORT OF CASE

History.—The patient, a white male, aged 75, was admitted to the Touro Infirmary, New Orleans, May 17, 1909, complaining of headaches, dizziness, constipation, belching, and involuntary contractions of the abdominal muscles just before going to sleep. His complaints were of four years' standing. His family history was entirely without interest for the present inquiry. He had always been perfectly well and did not remember any other than the most trifling illness. He had had gonorrhea thirty years ago. He chewed and smoked tobacco moderately and seldom drank alcohol.

Examination.—The physical examination showed a well-developed and well-nourished and well-preserved man. The heart was practically normal in size, the apex being just inside the left nipple and the right border at the right border of the sternum. No murmurs were to be heard. There was a moderate peripheral arteriosclerosis. The urine showed no abnormalities. The pulse showed a considerable range in frequency, beating sometimes at the rate of 30 to 35 and at other times as rapidly as 70 to 75. The heart-rate, counted at the apex, corresponded always with the radial pulse. The variation in the pulse is shown in the accompanying chart (Fig. 1), on which is recorded the rate taken every four hours. On June 12, 1909, he had "a spell of dizziness and almost lost con-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

sciousness for a second." He was taken to his room and there lay down. Shortly afterward his pulse was found to be 36 and weak. Heart-sounds could not be heard. After two or three minutes the pulse jumped to 72 and became stronger. A few weeks after his admission to the hospital he was transferred to the Julius Weis Old Folks' Home, which is a department of the Touro Infirmary, and has remained under observation during the year which has elapsed. He has continued to complain of frequent dizziness but there have been no more syncope attacks.

I was fortunate enough on several occasions to get tracings at the moment of the change in his pulse-rate. Such a tracing is given in Figure 2. This tracing was made October 17, 1909. At the beginning of the tracing the auricular rate was 66 while the ventricular was 33. Every other stimulus from the auricle, therefore, was blocked. The *a-c* interval (the time between the auricle beat and the ventricle beat) was $1\frac{1}{2}$ (expressed in fifths of a second). The normal interval is about one-fifth of a second. At the point marked *x* the block suddenly ceased and all the auricular stimuli passed through to the ventricle. The rates of the auricles and of the ventricles were now both the same, 60. The *a-c* interval continued to be one and a half fifths.

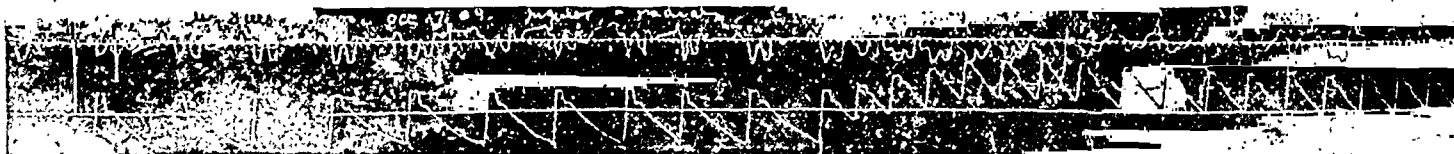


Fig. 2.—Pulse-tracing taken at the moment of change of pulse rate. At the beginning of the tracing the auricular rate was 66, while the ventricular was 33, afterward 60, showing block of every other stimulus from the auricle. No alternation of any waves; $a-c=1\frac{1}{2}$; continues the same after disappearance of block.



Fig. 3.—Tracing showing similar block of every other auricular stimulus. Auricular rate 60; ventricular 31.5; $a-c$ interval= $1\frac{1}{2}$; no alternation of waves.

Figure 3 shows a tracing taken Feb. 20, 1910. Here there is a similar block of every other auricular stimulus. The ventricular rate was 31 and the auricular rate 60. The *a-c* interval was somewhat longer than on the previous occasion, being one and two-thirds as compared to one and a half. Neither of these tracings presents the unusual alternation of the systolic and diastolic waves. This is seen apparently only in tracings where there is no heart-block. A good illustration is given in Figure 4. Here it is very easy to see in the jugular (the upper tracing) that the waves *v* and *h* are alternately high and low. Thus in cycles 6 and 8 they are high and in 7 and 9 they are low. The alternation is clearer in Figure 5, where the enlargement is greater. The wave *h* is not lettered here but it is the wave following immediately after the *v* and it will be observed that its alternation corresponds to that of the *v* wave. In both of these tracings there is no block, although the slowness of the radial pulse would have led one to suspect its occurrence. The rate of both auricles and ventricles was 46. The delay of the auricular stimuli is evidenced by the increased *a-c* interval—two-fifths of a second.

In order to attempt an explanation of this alternation it is necessary to stop here to inquire into the manner in which these waves are produced. The wave *v* is explained by Mackenzie¹ in this way: The blood (during ventricular systole) "comes mainly from the periphery into the auricles through the veins. When the auricle becomes filled the surplus distends the superior vena cava and jugular, and hence appears in the tracing as a wave." If we assume this as the correct explanation of the occurrence of the wave, then we must, in order to account for the alternation, assume that in some instances there is a greater surplus distending the vena cava and jugular than in other instances, or at any rate the surplus is sent back or held back with varying force. Since there is no reason to think that the amount of blood flowing from the periphery through the veins to the auricles varies so considerably and so regularly in volume from second to second, we are forced to consider that the cause of the alternation must lie in some condition of the auricular wall. It seems probable that a varying tonicity would permit the auricle to be distended to a varying degree. At times, therefore, the auricle would contain a larger amount of blood than

at others, and in consequence there would be a smaller surplus left to distend the vena cava and the jugular. This would make a smaller wave. When the tone of the auricle was greater a smaller amount of blood would be accommodated, a larger surplus would overflow into the vena cava and jugular and a large wave would be caused. The common occurrence of a pulsus alternans in the peripheral circulation presents an analogy which may be used as an argument in favor of the explanation I offer. If there may exist an alternation of the contractility of the ventricle, is it not reasonable to suppose that there may be an alternation of the tonicity of the auricle?

We may now turn our attention to the *h* wave and shall find, as I think, that the cause of its alternation lies in the same variability of the auricular tone. This *h* wave was described by Gibson² and Hirschfelder³ (independently) to the inrush of the blood from the auricles into the ventricles after the opening of the aortic over-

1. Mackenzie: Diseases of the Heart.
2. Gibson: Lancet, London, Nov. 16, 1907.
3. Hirschfelder: Am. Jour. Med. Sc., September, 1906.

tricular valves, causing the leaflets to be floated up, and bringing about a transient closure of the valves. This explanation is generally accepted. If this is correct, then it is apparent that the condition of the auricular wall will be the chief factor in determining the size of the wave, which will record the influence of this closing of the valves as a wave in the jugular tracing.

The tracing shown in Figure 6 was obtained at the same sitting as that in Figure 4. The plateaus succeeding the *v* waves and preceding the carotid, *c* waves were thought when the tracing was first studied to be due to the auricular contractions. In other words, they were considered to be *a* waves. There was, therefore, apparently an alternating condition of the auricular contractility. This was, however, a faulty interpretation as we shall see in a moment. Such an alternans action of the auricles has been described by Griffith.⁴ It was accompanied by an alternating ventricular contraction.

ure 6, and in comparing it with the other tracing made at the same time, it became evident that the plateaus already mentioned were due not to the auricular contraction *a*, but to *h* plus *a*. The initial rise of the plateau is due to the *h* wave and its level is maintained by the oncoming of the *a* wave which is not visible as an additional rise.

On two occasions I tried to ascertain the effect of atropin on the block. On both occasions I gave 1/60 of a grain hypodermatically and in both instances there was absolutely no result from its administration. Although the radial pulse was slow, (46), and I had expected to find a block present, this was not the case either time. Hence, I am unable to say what effect atropin would have on the block.

I desire to express my obligation to Prof. George Dock, who first pointed out the alternation of the waves.
602 Perrin Building.



Fig. 4.—Tracing made when there was no block, showing the alternation from high to low. Diastolic wave *h*; alternation of *v*; alternation of *h*; *a*—*c*; ventricular rate 46. No block.

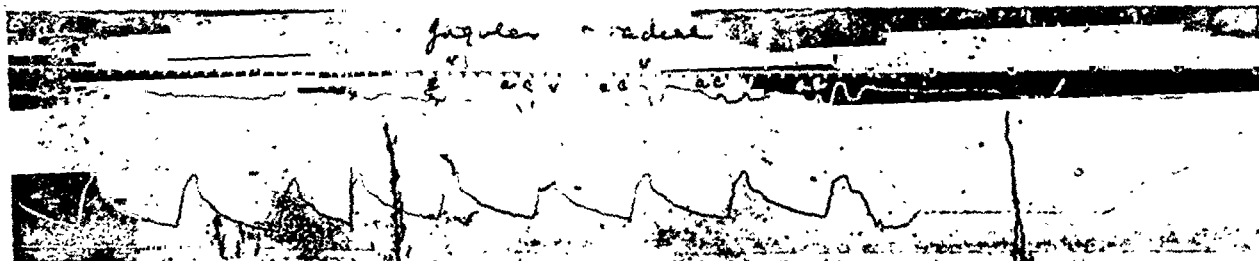


Fig. 5.—In this figure the alternation is clearer, the enlargement being greater. Ventricular rate 46; alternation of *v*; alternation of *h*.

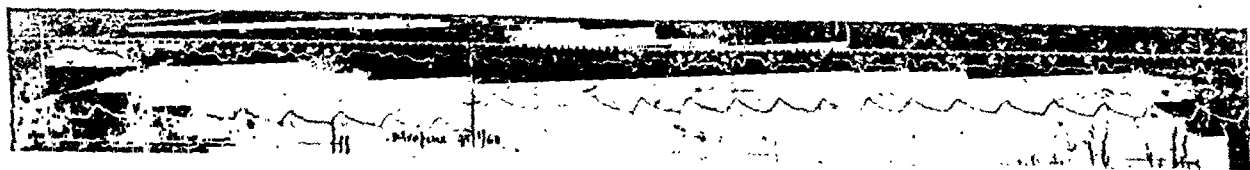


Fig. 6.—Tracing obtained at same sitting as Figure 5, showing apparent alternation of *a* waves. The initial rise following the *v* wave is due to the *h* wave and its level is maintained by the oncoming of the *a* wave, which latter is not visible as an additional rise, hence *a*—*c* cannot be measured. Ventricular rate 46.

Griffith explains the alternately large and small auricular waves as follows:

The primary condition is the alternans action of the ventricles. When the systoles are strong they last long enough to prevent the quickly following auricular contraction from driving the blood freely or at all into the ventricles and so a large wave is seen in the jugulars. When the ventricular systoles are weak they do not last so long, and the auricle can drive its blood in larger amount into the ventricle and consequently the jugular wave will be smaller. It is of course only when the *a*—*c* interval is unduly long, as it was in this case, that alternately large and small auricular waves could be determined in this way by an alternans ventricular action.

There was, however, no condition of this sort present in my case. On a closer analysis of the tracing in Fig.

4. Griffith: Quart. Jour. Med., January, 1910.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LEMANN AND BECK AND STOKES

DR. HAVEN EMERSON, New York: I have been much interested in result of experimental procedures or distention of the auricles with saline solutions. If one places a dog under ether anesthesia, and floods the auricles quickly with saline solution, the animal will develop auricular paralysis. But if one makes a slow infusion of the saline solution, there will result a condition of auricular vibration (fibrillation). It has been found that by replacing the blood of any tissue by any of the usual artificial circulation ordinary fluids we alter the tone of that tissue, especially the muscular tissue; therefore it is entirely conceivable that by flooding the auricles with saline solution there results an alteration of the *a* wave such as shown by the study just reported. The analysis of heart-block has been explained as being the result of an alteration of the tonicity of the auricular wall. So far as is known, the tonicity of the blood vessels alters but slowly. It must be

remembered that the heart muscle has been shown to correspond in every way with the skeletal muscles as regards the output of work and conditions under which work may be done to the best advantage as regards time or load. The heart muscle, however, does not appear to alter in tone so rapidly as do the skeletal muscles. We should consider the possibility that the tone of the muscle of the heart may alternate nearly as does the tone of the skeletal muscles. Until we can prove consistently that certain procedures alter the tone of the heart muscle we must be conservative in accepting such a change of tone as an explanation of or accompaniment of heart-blocks as instanced in the papers read.

DR. ALBERT E. TAUSSIG, St. Louis: I have under observation a case of congenital stenosis of the pulmonic orifice with a patent ductus arteriosus which shows a phenomenon similar to that described by Dr. Lehmann. The patient is a young man, aged 19, a shoemaker. He is able to earn a good living at his work in spite of his cardiac defect. The heart is enlarged and he has the typical murmur and other phenomena characteristic of stenosis of the pulmonic orifice. The *a* wave in the jugular bulb is exaggerated and shows well-marked alternation in height, especially when he is under the influence of digitalis. Tracings taken some weeks ago show that the radial pulse is about normal, while the jugular pulse shows a high *a* wave which alternates in height. This alternation occasionally fails. Another interesting feature of these curves is that at the same time of the alternation of the *a* wave there is an alternation of the *a-c* interval. The higher the *a* wave the longer the *a-c* interval. This is the reverse of what one might expect *a priori*.

INSTRUCTION OF THE PUBLIC IN ANTI-TUBERCULOSIS MEASURES BY A TRAVELING CAR EXHIBIT

GEORGE HOMAN, M.D.

Chairman Executive Committee, Missouri Association for the Relief and Control of Tuberculosis

ST. LOUIS

When the Missouri Association for the Relief and Control of Tuberculosis was formed in 1907 a main purpose of the organization was declared to be the enlightenment of the public on the disease in question by means of lectures, addresses, demonstrations, and exhibits, these activities being a necessary preliminary to a right understanding of the subject thus presented, and

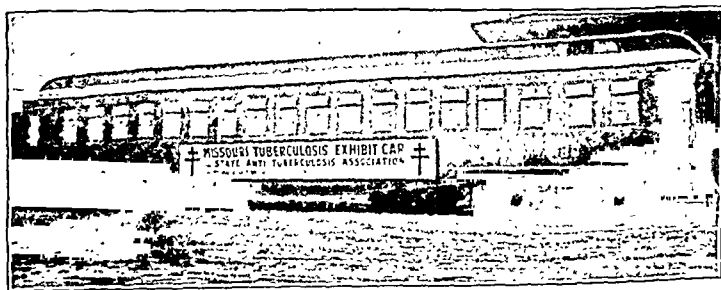


Fig. 1.—Exterior view of antituberculosis exhibit car.

to afford an intelligent basis on which local organization could be brought about.

To the extent that its limited means allowed a consistent effort was therefore made by the association to enlist the interest and aid of local communities through their medical, social and business organizations, and with some success, the medical societies naturally being the leaders and chief supporters of such movements and auxiliary branches were formed in a number of cities and counties of the state. It was found, however, that these bodies tended in time to become listless, and in

casting about for other means of awakening interest in the subject of tuberculosis and its prevention, the idea was conceived that a well-chosen exhibit installed in a railway coach and sent over the railroad lines in charge of a qualified staff would very likely prove to be the most effective form in which such an object lesson could be presented to the public at large.

With this end in view the association early in 1908 made overtures to the State Board of Health suggesting cooperation and joint effort to accomplish this undertaking, but as an outcome difficulties appeared and the negotiations were brought to a close.

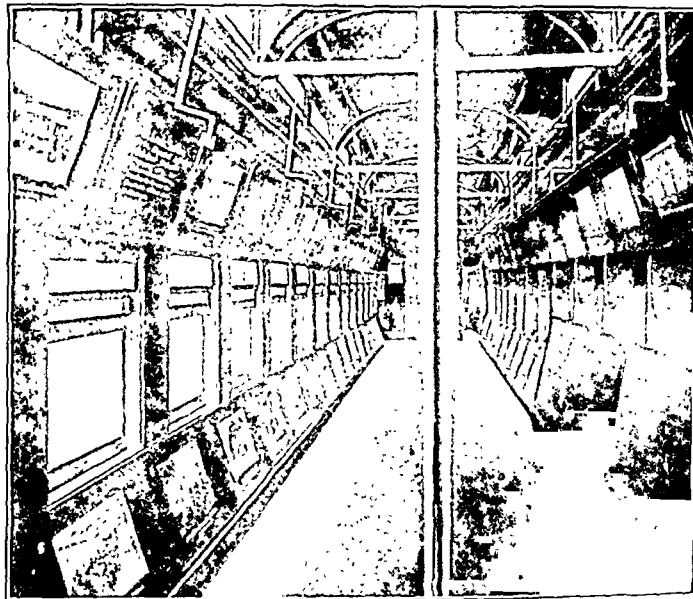


Fig. 2.—Interior view of antituberculosis car.

The project, however, was not lost sight of and endeavors were made to secure funds for this purpose, which hope was realized last June when the announcement was made in the Section on Preventive Medicine and Public Hygiene at the annual meeting of the American Medical Association in St. Louis that a check was in hand ample in amount to cover for a limited time the expenses involved in the equipment and operation of the contemplated railroad car service.*

The managers of railway systems operating lines in Missouri were at once approached with representations touching the plans of the association, with the result of securing a prompt response from the St. Louis and San Francisco System, a first-class day coach being tendered with a promise that it would be turned out of the shops in complete order to receive the exhibit as planned, with special devices for hanging and lighting, no charge to be made for the car or for hauling it, while free transportation for five persons would be supplied, if desired, this gratuitous service including even gas, ice, etc.

The St. Louis Municipal Commission on Tuberculosis with generous public spirit offered the free use of their valuable framed exhibit, which it was found could be used to superior advantage in fitting out the car, and acknowledgment of this graceful courtesy was made accordingly.

* The donor of this fund was Mr. Adolphus Busch, a distinguished citizen of St. Louis, who is widely known as a generous giver to many worthy causes. The work of preparing the car for the road in all its details was placed in the hands of a subcommittee composed of Mr. J. H. Lynch, treasurer of the association, Dr. James Stewart and Mr. Robert J. Newton, secretary of the Municipal Commission on Tuberculosis. Miss W. Doyle, assistant secretary to the association, served as advance agent to the car.

The final details respecting the supervision, equipment, routing, etc., of the car were completed toward the end of July, and August 1 was fixed on as the date for starting, a time schedule having been prepared by the officials of the road which covered twenty-four days and provided for stops and demonstrations at thirty-eight towns and cities located in twenty-eight different counties.

It was decided that the offer by Dr. James Stewart, medical supervisor to the St. Louis Board of Education, of his services free as lecturer in full charge of the car be gratefully accepted, and he was provided with a paid helper to look after the property, work the stereopticon and give aid in other ways as required, sleeping quarters being provided for him in the car. It was arranged further that the assistant secretary should travel from five to seven days in advance of the car and make all necessary arrangements for the meetings with the local people at the designated stopping places, getting at once in touch with public officials, physicians, newspaper men, clergy, business men, club women, etc., notices being regularly mailed ahead stating what was desired by her.

The car left St. Louis as per schedule going southward through territory bordering on the Mississippi River to the extreme southeastern part of the state, thence westward along the southern slope of the Ozarks to Springfield and the thickly peopled lead and zinc mining districts of southwest Missouri; then northward along the western border to Kansas City, where two days were spent, the exhibit being removed from the car to the business center of the city. Returning to Springfield by another route, St. Louis was reached by the trunk line of the Frisco system, the schedule having been extended four days in response to a popular demand for more time at different stopping places, the tour closing August 28.

On its second tour the car left St. Louis September 7, via the Missouri, Kansas and Texas system, the plan being to traverse the entire central part of the state from Hannibal on the Mississippi River to St. Joseph on the western border, covering both sides of the Missouri River and visiting some of the oldest and most thickly populated parts of the state. The return route was to be by way of the Rock Island railroad, this system equaling the others in the courtesies and services freely extended. The success of this further undertaking seems undoubted as increasing attendance at lectures, with financial support, and growing public interest have uniformly marked its course.

In fitting up the car the space was utilized to the utmost by the device of a partition lengthwise in the center formed of framed pictures hung back to back, as imperfectly shown in the accompanying illustration. The end and side walls were also fully utilized, and on shelves and in lockers an ample supply of literature, buttons, post cards, sanitary folding cups, etc., was to be found.

The association was fortunate in securing the services of Dr. Stewart for this work, who, as a former member of the Missouri General Assembly, was successful in securing legislation providing for the state sanatorium now located at Mount Vernon. A part of the purpose of this tour was that every proper effort should be made to meet the candidates for the legislature in each county and explain to them the objects in view, and by thus

interesting them and their people, to secure support for such recommendations on public health lines as may be submitted to the legislative body by the Governor at the session which opens next January, and in this direction much encouragement is reported as a result of the trip. Indeed, it may be claimed with justice, that for a venture which, so far as known, stands unique in its character as a pioneer effort, the undertaking was a conspicuous success, large and interested gatherings being the rule, tuberculous people in rural parts sometimes traveling as many as thirty or forty miles to reach the car in the hope of learning something of benefit to themselves.

It is evident that the higher officials of some of the leading railway lines are beginning to realize the value of such public teaching in disease repression, and this fact was plainly shown in the cordial zeal and skill with which this undertaking was promoted down to the minutest details by Mr. A. Hilton, general passenger agent of the Frisco road, supplemented at certain points by the Saint Louis Southwestern, and the Missouri Pacific railroads, reaching in all a population, not including Kansas City, of nearly a quarter million of people, 1,248 miles being traversed in the tour of the car.

The Missouri, Kansas & Texas Railway management have tendered to this association every facility at their disposal for the operation of the exhibit car over their lines, by means of which a very considerable additional population can be reached, and it is hoped that all the other systems will see the advantage of like action in the warfare against consumption.

A keen interest in public health affairs could have been the only inducement which led the governor of Missouri, Hon. Herbert S. Hadley, to consent to accept the presidency of this association, and this interest was shown to a still greater degree by the official naming of a commission of twenty or more citizens of this state whose duty it will be to make thorough inquiry respecting tuberculosis in Missouri, and frame a report on which he may base recommendations to the legislature for remedial action next year.

While it was found that a considerable financial outlay is involved in the operation of such a traveling exhibit, even when much necessary service is rendered free of charge, still it is firmly believed that the returns to the public in the form of a better knowledge of disease prevention fully repays such expenditures, and it is the hope of the association that additional financial means will be forthcoming to enable this form of instruction to be pushed into every part of the state where the railroads penetrate. Thus far practically the whole burden of this work has been borne in St. Louis, and the available funds of the association have been exhausted in the enterprise herein sketched.

As before indicated, much of the best help and cooperation at the different points was given by the organized medical profession, officials of local societies, councilors, and the president of the state association, Dr. H. E. Pearse, all lending a hand with full sympathy and good will to forward the cause. A number of leading physicians along the route even volunteered their services for work with the car if future tours were found possible. Another factor making for the success achieved was the public press, many of the papers giving columns of space to descriptions, with pictures, etc., showing the work and purposes of the car.

ALOPECIA AND SEBORRHEA *

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Dandruff and loss of hair are two of the minor afflictions of civilized life which are usually sources of constant chagrin to the unfortunate men and women who fall victims to their presence. One or both of these conditions, which even we ourselves experience sooner or later, are brought to our attention as dermatologists so frequently that it seems fitting from time to time to present them as themes for discussion when we meet in the hope that some member here may contribute some small bit of knowledge to a subject which needs so much help from an etiologic and therapeutic standpoint. It is, therefore, because we practitioners are usually so helpless when confronted by a well-established case of alopecia or of seborrhea that I have ventured to summarize my knowledge of these conditions gleaned from the study of 794 examples observed in my personal private practice.

In the following pages I shall deal principally with seborrhea capitis and with alopecia simplex and alopecia furfuracea, but I shall speak superficially on alopecia areata, and alopecia from ringworm, syphilis and overexposure to x-rays.

ALOPECIA

Statistically, I record 679 cases of loss of hair divided clinically as follows:

	Cases	Males	Females
Alopecia simplex ¹	115	37	78
Alopecia furfuracea	443	206	237
Alopecia areata	86	46	40
Alopecia from ringworm.....	16	9	7
Alopecia from syphilis.....	17	11	6
Alopecia from x-rays.....	2	1	1
	679	310	369

From these figures it will be seen that women are more often affected by loss of hair than men, in the relative proportion of 54 and 46, unless it be that women feel this loss more keenly and therefore consult physicians more freely on this account. It is interesting, however, to note the figures of Elliot,² who in his paper of 1892 records about identical percentages, viz. 55 per cent. women and 44 per cent. men. Jackson,³ on the other hand, in 1893 found the proportions reversed and recorded alopecia in 52 per cent. males and 48 per cent. females.

Possible Etiologic Factors in Alopecia Simplex and Alopecia Furfuracea

From a study of my records it will be noted that heredity, dandruff, systemic depression, fever, operations and maltreatment of the scalp have been connected in the patients' minds with the production of the fall of the hair. Under the heading of systemic depression figure overwork, worry, nervous exhaustion and prostration, recent immigration or foreign travel, pregnancies, and chronic diseases or invalidism. The term "maltreatment of the scalp" is based on my own per-

sonal theories as to what is right and what is wrong in the hygiene of the scalp and includes the rough usage of brushes, combs and massage in the presence of dandruff; shampoos less often than once a month or more frequently than once a week; the use of any drugs in any form on the healthy hair or scalp; the continued application of too drying alkaline soaps; the frequent or constant exposure of the uncovered head to the summer sun; the daily sousing of the head in shower-baths or in salt water; and the modern over-treatment of the normal scalp by barbers and hairdressers.

Statistically we find these factors summed up as follows:

	Cases
Heredity: Father's side of the house.....	108
Mother's side of the house.....	51
Not recorded	12
	171
Alopecia present in brothers or sisters.....	72

From these figures it is seen that a hereditary taint exists in 30 per cent. of these individuals. Dandruff was present in 443 patients, a percentage of 79+. Systemic depression was recorded in 120 cases, a percentage of 21+. Fever was noted in 63 individuals, a percentage of 11+. Operations were blamed in 12 persons, a percentage of 2+. Maltreatment was evident in 277 patients, a percentage of nearly 50; and, finally, more than one of the above possible etiologic factors was found in 386 cases, a percentage of approximately 70.

It may be interesting to pause a moment and compare these figures with those of Dr. G. T. Elliot⁴ and of Dr. G. T. Jackson³ who based their figures on 344 and 300 cases respectively.

	Heredity	Systemic Causes	Seborrhea
Elliot	1.16*	5.52	91.68
Jackson	38.32		72.66
C. J. White.....	30.64	21.50	79.39

* This percentage relates to alopecia simplex only.

The figures which follow in the rest of this paper are not wholly satisfactory and are comparatively small, as the symptoms had existed so long in many cases that patients were unable to remember the exact date of their beginnings.

Ages When Alopecia Simplex First Appeared

Among those who could be exact there were 25 males and 43 females out of a possible 37 and 78 respectively.

Males: 7 cases began between 16 and 20.
8 cases began between 21 and 25.
6 cases began between 26 and 30.
1 case began at 35.
1 case began at 39.
2 cases began at 46.

It will be seen that this clinically uncomplicated type of loss of hair begins at or before the age of 30 in 84 per cent. of the male cases.

Females: 7 cases began at or before the age of 15.
3 cases began between 16 and 20.
5 cases began between 21 and 25.
4 cases began between 26 and 30.
7 cases began between 31 and 35.
2 cases began between 36 and 40.
6 cases began between 41 and 45.
6 cases began between 46 and 50.
2 cases began between 51 and 55.
1 case began at or before the age of 56.

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. By this term is meant the simple loss of hair without other objective symptoms.

2. Elliot, G. T.: Sixteenth Annual Meeting of Am. Derm. Assn.; see report, p. 81.

3. Jackson, G. T.: Loss of Hair, a Clinical Study Formed in 300 Private Cases, Tr. Am. Dermat. Assn., 1900, p. 50.

4. Elliot, G. T.: Alopecia and Its Most Frequent Cause, Dermatitis Seborrheica, Tr. Am. Dermat. Assn., 1895, p. 95.

Of the seven early cases five followed acute febrile disturbances. Between the ages of 15 and 30, however, we find that 33 per cent. of these women developed their simple alopecia, contrasted with a respective percentage of 84 in men, whereas between the ages of 31 and 50 we note a percentage of 58, figures which force us to the conclusion that alopecia simplex develops much later in women than in men.

Ages When Dandruff and Alopecia Appeared in Alopecia Furfuracea

DANDRUFF

Males, 91 cases.

3 cases	began between 9 and 10
8 cases	began between 11 and 15
31 cases	began between 16 and 20
25 cases	began between 21 and 25
14 cases	began between 26 and 30
8 cases	began between 31 and 35
1 case	began at 37 and 1 at 43

Females, 75 cases.

3 cases	began between 7 and 10
12 cases	began between 11 and 15
10 cases	began between 16 and 20
13 cases	began between 21 and 25
11 cases	began between 26 and 30
12 cases	began between 31 and 35
7 cases	began between 36 and 40
3 cases	began between 42 and 45
4 cases	began between 46 and 56

Contrasting these two columns of statistics we are struck by two facts, viz., that men are more prone to remember the exact date when their dandruff began than is the case with women and that in these men and women seborrhea capitis appeared at an earlier period in the former sex than in the latter. Thus between the years 16 and 25 we find 61 per cent. of males developing their dandruff while in females at a similar epoch we find but 32 per cent.

ALOPECIA

Males, 127 cases.

6 cases	began between 10 and 15
30 cases	began between 16 and 20
55 cases	began between 21 and 25
14 cases	began between 26 and 30
14 cases	began between 31 and 35
2 cases	began between 36 and 40
3 cases	began between 41 and 45
2 cases	began between 46 and 50
1 case	began at 60

Females, 129 cases.

7 cases	began between 12 and 15
24 cases	began between 16 and 20
21 cases	began between 21 and 25
25 cases	began between 26 and 30
25 cases	began between 31 and 35
16 cases	began between 36 and 40
5 cases	began between 41 and 45
1 each	at 46, 51, 54, 61, 63 and 68

In these columns it is seen that men and women are apparently equally impressed by the exact age at which their hair begins to fall but that between the ages of 16 and 25 alopecia develops in 67 per cent. of the men affected against 34 per cent. in the women.

Thus from these foregoing contrasting figures we learn that men are attacked much earlier than the opposite sex by alopecia furfuracea whereas women as a whole become the victims of alopecia, either simple or furfuraceous, more often than men, in fact, in the proportion of 56 to 43.

Varieties, Distribution, and Subjective Symptoms of Dandruff and Loss of Hair in Alopecia Furfuracea

DANDRUFF	Cases.	ALOPECIA	Cases.
Slight in	127	Slight in	67
Abundant in	199	Marked in	130
Localized in	83	General in	30
Yellow-brown in	56	Principally on forehead	
Oily in	78	in	119
Dry in	53	Principally on top of	
Granular in	23	head in	79
Adherent in	38	Principally on sides in..	13
Loose and large in	39	Principally at tonsure in	38
Accompanied by pruritus		Hair dry in	37
in	97	Hair greasy in	15
Accompanied by burning		Hair split in	49
in	3	Hair short in	34
Accompanied by hyperid-		Hair coarse in	8
rosis in	30	Hair fine in	21

These figures require no elucidation. It is evident from their study that in alopecia furfuracea we may expect to encounter more often well-marked examples of seborrhea and of loss of hair than the reverse; that dandruff is usually general in distribution, while alopecia is generally localized; that dandruff is frequently accompanied by subjective symptoms and is often associated very strikingly with many changes in the texture of the hair as well as in its loss.

The Treatment of Alopecia Furfuracea

I fear that we must all agree that our therapeutic results in this disease are very disheartening. I tell all my patients who have noted this condition for more than a few months, and especially those whose forebears have been similarly affected, that a permanent cure is hardly to be hoped for, but that by long and continued perseverance on their part they may keep their scalps clean and delay the inevitable baldness for years.

The medical aphorism which tells us that therapeutic non-success may be judged by the multiplicity of the drugs recommended in a given disease is well emphasized in the present instance.

My armamentarium has included the following medications:

Washes, containing 70 per cent. alcohol, quinin, cantharides, capsicum, pilocarpin, chloral hydrate, tartaric and salicylic acids, phenol, formaldehyd, trikresol, anthrasol, and croton and turpentine oils.

Ointments, containing sulphur, salicylic acid, zinc oxid, resorcin, oil of cade, ichthyol, succus limonis, yellow oxid and ammoniated chlorid of mercury, orthoform and bichlorate of soda.

Soaps, containing betanaphthol and glycerin.

Internal medication, including iron, nux vomica, magnesium sulphate, dilute sulphuric acid, betanaphthol, malt, cod-liver oil, phenyl salicylate, ichthyol, salicin, thyroid extract and phosphate of soda.

Massage.

Despite this long list I practically confine myself to four prescriptions which I append:

1. R. gm. or c.c.
Acid. salicyl
Sulph. precip. aa 2 } or 5ss
Petrolatum 32 } 5i
M. S.—Ointment. Apply at night. Shampoo with a simple soap the following day.

2. R. gm. or c.c.
Pilocarpin nitrat. 106 } gr. i
Quinin sulph. 6 } or gr. x
Tr. canthar.
Tr. capsic. aa 10 } 3iii
Alcohol, 70 per cent. ad. 250 } fl. 3viii
M. S.—Wash for scalp. Apply in the morning.

3. R.	gm. or c.c.	
Acid tannic	2 1/2	gr. xxxv
Chloral hydrate	1 1/2	gr. xxvii
Acid tartaric	2	gr. xxx
Ol. ricini	1	or m. xv
Alcohol, 70 per cent.	200	fl. 5vi
M. S.—Wash for scalp. Apply in the morning.		
4. R.	gm. or c.c.	
Hydrarg. chlorid. corrosiv.	24	gr. iv
Euresol	8	or 5ii
Sp. formicarum	30	5i
Ol. ricini	4-12	5i-iii
Alcohol, 70 per cent. ad.	250	5viii
M. S.—Wash for scalp (poison). Apply two teaspoonfuls in the morning.		

The last of these four I hold easily first in its successful results. I associate its formula with Dr. G. T. Elliot, and it has proved a veritable godsend to me in treating many of these almost impossible cases. The essential feature in its composition is, I believe, euresol—the mono-acetate of resorcin. The smell of this salt is a very unfortunate factor, however, but one which the manufacturers have not been able to eradicate without markedly diminishing the value of the drug. The chloralhydrate wash I place second in efficacy.

Perhaps the most striking feature of these four prescriptions seems to be the absence of pure resorcin from their composition. I am free to confess that I never have been able to reduce its strength sufficiently to render it anything but an irritant to the scalp.

Results of Treatment Summarized by Age

MALES, 200 CASES			
Very good, 16 cases		Slight, 58 cases	
At 19	2 cases	Between 15 and 20, 10 cases	
Between 20 and 25, 4 cases		Between 21 and 25, 20 cases	
Between 26 and 30, 3 cases		Between 26 and 30, 13 cases	
At 31	1 case	Between 31 and 35, 6 cases	
Between 41 and 45, 3 cases		Between 36 and 40, 2 cases	
Between 46 and 50, 2 cases		Between 41 and 50, 4 cases	
At 58	1 case	Between 53 and 63, 3 cases	
Good, 80 cases		Poor, 37 cases	
At 13 and 14, 2 cases		At 18 and 19, 2 cases	
Between 16 and 20, 10 cases		Between 21 and 25, 14 cases	
Between 21 and 25, 16 cases		Between 26 and 30, 8 cases	
Between 26 and 30, 23 cases		Between 31 and 35, 7 cases	
Between 31 and 35, 13 cases		Between 36 and 40, 4 cases	
Between 36 and 40, 9 cases		Between 42 and 46, 2 cases	
Between 41 and 45, 3 cases		Bad, 9 cases	
At 49, 56, 65 and 75, 1 case		Between 20 and 26, 4 cases	
		At 32	2 cases
		At 38, 42 and 53, 1 case	
FEMALES, 194 CASES			
Very good, 17 cases		Good, 93 cases	
At 13	1 case	Between 11 and 14, 4 cases	
Between 26 and 30, 4 cases		Between 16 and 20, 7 cases	
Between 31 and 35, 5 cases		Between 21 and 25, 19 cases	
At 38	2 cases	Between 26 and 30, 15 cases	
Between 47 and 50, 3 cases		Between 31 and 35, 16 cases	
Between 56 and 60, 2 cases		Between 36 and 40, 12 cases	
Slight, 53 cases		Between 41 and 45, 7 cases	
Between 5 and 9, 2 cases		Between 46 and 50, 4 cases	
Between 13 and 15, 4 cases		Between 51 and 55, 3 cases	
Between 16 and 20, 2 cases		Between 57 and 60, 3 cases	
Between 21 and 25, 11 cases		At 63, 80, 83 each, 1 case	
Between 26 and 30, 11 cases		Poor, 25 cases	
Between 31 and 35, 7 cases		Between 11 and 15, 2 cases	
Between 36 and 40, 4 cases		Between 16 and 20, 2 cases	
Between 41 and 45, 3 cases		Between 21 and 25, 3 cases	
Between 46 and 50, 5 cases		Between 26 and 30, 6 cases	
Between 51 and 55, 2 cases		Between 31 and 35, 4 cases	
At 70	2 cases	Between 36 and 40, 2 cases	
Bad, 6 cases		At 50, 56, 60	2 cases
At 15	1 case		
Between 30 and 37, 2 cases			
Between 43 and 48, 3 cases			

These figures are comparatively small because many patients came but once and hence cannot be included in these lists.

From these figures it is seen that the prognosis in women is better than in men in the proportion of 56 per cent. to 48 per cent. These percentages are based on the "very good" and the "good" results in both sexes; and in addition we see that there were fewer "poor" and "bad" results in women than in the men in the proportion of 16 per cent. to 23 per cent. Therefore, we may encourage our feminine patients decidedly more than we can our masculine.

SEBORRHEA

Included in this study of 794 cases were found 117 individuals who were the subjects of dandruff alone. It is rather a disconcerting fact to find so many examples of seborrhea capitis without resulting loss of hair, especially as this condition had existed for many years in many of these people—disconcerting because in this paper it has been inferred, at least, that dandruff is the most frequent cause of alopecia. Nevertheless, when the data are put into cold figures it will be found that these inferences are perhaps not wholly wrong. In the list there are 115 cases of alopecia simplex or a total number of 232 individuals in whom dandruff has played no part in the production of loss of hair. On the other hand, there is a total of 443 men, women, and children, a ratio of nearly two to one, in whom dandruff and loss of hair were present and in whom, by the figures in the great majority of instances, the seborrhea had preceded the alopecia for varying lengths of time.

To return to our cases of seborrhea simplex. Of the 117 examples 54 were males and 63 females, a ratio of 46 to 54—a distinct feminine preponderance and curiously enough corresponding absolutely exactly to our percentages of alopecia from various causes recorded in the early part of this communication (see above).

Age When Seborrhea Began

Males, 32 cases		Females, 29 cases	
At 1, 11, 14 each, 1 case		At 1, 7 each, 1 case	
Between 16 and 20, 8 cases		Between 10 and 15, 7 cases	
Between 21 and 25, 2 cases		Between 16 and 20, 10 cases	
Between 26 and 30, 10 cases		Between 21 and 25, 3 cases	
Between 36 and 40, 4 cases		Between 26 and 30, 4 cases	
Between 53 and 60, 4 cases		At 41	1 case
At 65	1 case		

These are rather small figures from which to draw conclusions but one is struck by the fact that dandruff comes on in childhood or in early adult life—71 per cent. in men and 96 per cent. in women exhibiting this symptom at or before the age of 30.

Incidence of Seborrheic Symptoms Other Than Dandruff

For some years it has been my custom to regard seborrhea as merely the cutaneous evidence of some internal disorder and to look on acne vulgaris, acne rosacea, eczema seborrheicum and Fordyce's disease of the lips as similar expressions of the same general disturbance. So, from a study of these records, I find that in the 443 cases of alopecia furfuracea there were 57 individuals (a percentage of 12, consisting of 31 males, and 20 females) who exhibited one or more of these allied eruptions; while in the 117 examples of seborrhea simplex there were 29 men and 38 women (a total of 67, or a percentage of 57) with similar efflorescences.

DYSPEPSIA

As to the nature of the fundamental disorder which, some think, lies at the bottom of these seborrheic symptoms we are decidedly at sea. Many of us, however, are wont to accuse digestive disturbances as possible sources of trouble and in this series of cases clinical evidences of dyspepsia have been found in the following percentages: in alopecia simplex 3; in alopecia furfuracea 8; and in seborrhea simplex 17. Surely, these are small crumbs of comfort to the believers in the digestive origin of these disorders.

Regions Affected in Alopecia Areata and in Ringworm

ALOPECIA AREATA, 86 CASES

Scalp, 71 cases		Ringworm, 9 cases	
Occipital,	36 cases = 50 %	Occiput,	5 cases = 55 %
Parietal,	11 cases = 15 %	Top of head,	2 cases = 22 %
Top of head,	8 cases = 11 %	Sides,	1 case = 11 %
Frontal,	5 cases = 7 %	Beard,	1 case = 11 %
General,	11 cases = 15 %	Face, 21 cases	
		Beard,	13 cases = 62 %
		Upper lip,	5 cases = 24 %
		Eyebrows,	3 cases = 14 %

No comment is necessary on these figures; they are very small but they speak for themselves. In scrutinizing my cases of alopecia areata I was struck by the marked incidence of an accompanying dandruff. This statement of course coincides with Sabouraud's dictum that pathologically and bacteriologically seborrhea always precedes or accompanies alopecia areata. Another fact impressed on my mind in the study of these cases is that one attack of alopecia areata very often leads to one or more successive outbreaks.

SUMMARY

This then brings me to the end of these numerous columns of figures and deductions, which in conclusion I may summarize as follows:

1. Alopecia accompanied by dandruff is the commonest type of loss of hair.
2. Women are more prone to alopecia than men, in the proportion of 54 to 46.
3. The possible and principal causal factors of alopecia are heredity in 30 per cent., dandruff in 79 per cent., systemic depression in 20 per cent., fever in 11 per cent., and maltreatment of the scalp in 50 per cent.
4. Alopecia simplex develops before the age of 30 in 84 per cent. of the men, but in only 33 per cent. of the women.
5. Dandruff behaves in a similar manner and before the age of 25 attacks 61 per cent. of its future male victims but only 32 per cent. of its female.
6. The loss of hair in alopecia furfuracea comports itself with these previous two findings, appearing before the age of 25 in 67 per cent. of the men, but only in 34 per cent. of the women.
7. Summarizing paragraphs 2, 4, 5, and 6, we find that men are attacked earlier than women with alopecia and with seborrhea but that eventually women rather than men fall victims to these conditions.
8. When dandruff is present it is apt to be abundant rather than slight, oily rather than dry, and to be accompanied by itching.
9. With alopecia we find well-marked cases rather than mild ones, located in the great majority of the cases in the frontal and temporal regions and accompanied by hair which is apt to be dry, split, short and fine.

10. The drugs most successful in the treatment of dandruff and loss of hair are euresol, bichlorid of mercury, tannic acid and chloral hydrate.

11. The final results of treatment in these affections are almost disheartening, but judged from a temporary point of view, we may expect good or very good response in 48 per cent. of men and in 56 per cent. of women.

12. Seborrhea may exist for years without entailing any appreciable loss of hair; nevertheless, dandruff does seem to be followed or accompanied by alopecia twice as often as not.

13. Seborrhea simplex is a disease of childhood or early adult life, developing before the age of 30 in 71 per cent. of men and 96 per cent. of women.

14. Other seborrheas of the skin such as acne vulgaris, acne rosacea, eczema seborrheicum and Fordyce's disease, may accompany loss of hair and dandruff. Their percentages of concomitance, however, vary, and consist of 12 per cent. in alopecia furfuracea and 57 per cent. in seborrhea simplex.

15. Dyspepsia, on the other hand, exists in surprisingly small percentages in these cases, being present in only 3 per cent. in alopecia simplex, 8 per cent. in alopecia furfuracea, and 17 per cent. in seborrhea simplex.

16. From the preceding two paragraphs we may induce that seborrhea simplex is a truer form of dandruff than that accompanying loss of hair.

17. In alopecia areata and in ringworm of the scalp, the region most affected is the occipital.

18. In alopecia areata dandruff is a frequent accompaniment and we also find that one attack of the disease is apt to be followed by one or more later outbreaks.

259 Marlborough Street.

ABSTRACT OF DISCUSSION

DR. WILLIAM O. ROOF, Dayton: I indorse Dr. White's statement in regard to the value of euresol in treatment of these diseases of the scalp. I have frequently included it in my application in the treatment of these seborrheic conditions, and it has given me better results than some of the older remedies.

I have been consulted during the past year in several cases of alopecia areata, and in all I was particularly struck by the accompanying seborrhea; and while the recognized treatment has always been of a stimulating character, I felt that inasmuch as the etiology of alopecia areata is somewhat in dispute, that perhaps the same treatment as for seborrhea, and of a less stimulating character than that usually employed, might be successful. With that idea in view, I used a simple ointment of sulphur and resorcin, rubbing it into the patches at night, and in a number of instances I have been rewarded by a rapid return of hair in these bald areas. In other cases I have used treatment of a more stimulating character, such as applications of chrysarobin, phenol and the high-frequency current, but I was surprised to observe that my results were more rapid and satisfactory from use of the milder methods. This would suggest that alopecia areata may be of seborrheic origin since the two affections are so frequently concurrent and both yield to the same treatment.

DR. FRANK C. KNOWLES, Philadelphia: In anticipation that Dr. White would dwell on the subject of alopecia areata, I have reviewed the dispensary reports of four hospitals, the Pennsylvania, University of Pennsylvania, Howard, and Children's, with which I am connected. During the last five years I have seen 105 cases of this disease, twelve of this number being of the universal type. Alopecia areata of dental origin has recently been reported by several writers; Jacquet has written most extensively on this phase of the subject.

Rousseau-Decelle (*Bull. et mém. de la Soc. méd. des hôp.*, 1909, p. 62) has described several cases. Jourdanet (*Bull. de la Soc. française de dermat. et de syph.*, April, 1910), detailed an alopecia areata of the nape of his own neck following caries of a wisdom tooth. Traumatism seemed to have been etiologic in a few of my cases. In my collection of photographs are five pictures of a case of universal alopecia, in a boy of sixteen. The various stages and relapses of the disease, extending over a period of three and one-half years, are plainly shown. The last photograph, which was taken in May, 1910, shows complete restoration of all the hair.

DR. J. M. KING, Nashville: Dr. Whitfield, of King's College, London, who has the reputation of being a very careful and competent observer, has found some defect of vision in nearly all his patients with alopecia areata. I remember that whenever such a patient consulted him, he always had the vision tested. In treatment, the prescription that I have used, in alopecia of the seborrheal type has been made up of bichlorid of mercury, resorcin, chloral hydrate, tincture of cantharides, glacial acetic acid and alcohol. I first saw this used in St. George's Hospital, London, and I found that it acted very well indeed in a number of cases. I have not tried euresol, as this mixture has served me well in conjunction with sulphur ointment, used once every week or two weeks, the night before the application of green soap shampoo.

DR. ALFRED SCHALEK, Omaha: I was surprised to hear that seborrhea was an incurable disease, as my experience has not borne that out. I believe that it is curable in the majority of cases if the treatment is sufficiently prolonged. In one case of alopecia areata in which I applied the high-frequency current, the coincident seborrhea of a severe type from which the patient was also suffering largely disappeared, and from that time on I have used the high-frequency current in these cases with good results.

DR. J. B. KESSLER, Iowa City: The statement made by Dr. White that alopecia was more common in females than in males rather took me by surprise. My experience has been the reverse. In the hospital with which I am connected there are about 45 nurses in the training-school; after they have been in the hospital six or eight months many of them complain that they are losing their hair. Last summer, in connection with some of my colleagues, I took up this matter to see if the cause of this loss of hair could be determined. We investigated the cooking and the quality and quantity of the food, which was up to the average and sufficiently nourishing, and the only possible etiologic factor we could find was a lack of exercise in the open air. These nurses were on continuous duty for twelve hours and then returned to the Nurses' Home to sleep and study. It seems to me that this is the most prolific cause of alopecia in this class of people. I believe that women, as a rule, take better care of their hair than men, and when the hair becomes affected they are apt to follow the physician's directions more faithfully than men.

I have had some experience with euresol, and while it is very efficient, it is also very expensive, \$1.00 an ounce making the price almost prohibitive. I have found, usually, in these forms of alopecia, that ointments are better in the beginning than solutions, and that the latter are more effective when they are preceded by the use of ointments. A favorite application of mine—although its odor is objectionable—is the oil of cade and sulphur. I first learned the value of this mixture while I was in Boston, working under the elder Dr. White. Euresol was brought to my attention through the kindness of Dr. Charles J. White; my results with this remedy, as well as those of my son, have been very satisfactory. I keep up the application for about a month, when the dandruff can be easily removed and the scalp will remain free from it for a reasonable length of time. There are some cases, however, and I have one under my observation at the present time, in which all methods of treatment are more or less unsatisfactory.

DR. ISADORE DYER, New Orleans: I want to sound one note in the danger of the use of the hair brush. I have preached for many years that no patient with dandruff will

recover until the hair brush is discarded. There are only two ways of sterilizing it: One is by boiling and the second is by burning it. In the propagation of dandruff, the barber-shop is probably the chief offender, and I believe that an inspection of the usual ancient hair brush found in the wash-room of the country hotel or in any public place will demonstrate the destruction of the bristles of the brush itself by the micro-organism. The men who are interested in the work of this Section, as well as all dermatologists, should carry on this crusade against the hair brush as I have long done in my own city. I have frequently seen patients in whom the recurrence of dandruff invariably followed a visit to the barber shop. While on a visit aboard, after I had been free from dandruff for many years, I visited a barber shop and warned the barber not to use the brush. Just as he was completing his work, however, he forgot my instructions and gave one stroke with the hair brush. Five days later I again began to treat my scalp for dandruff. I cannot concede that the particular form of seborrhea which we call dandruff is incurable. I instruct male patients to wash their scalp every day; the female patients every other day, or at least twice a week. An experience extending over a number of years, has justified my faith in the use of resorcin, 2 to 5 per cent. solutions. Euresol has no advantage over this, in my own experience. In fair-haired patients, or those who have hair tinged with gray, the resorcin must be modified or some substitute employed. By neglecting this precaution, I have once or twice in my early experience inflicted on my patients hair which in color resembled the plumage of a canary bird. Chloral hydrate serves in these cases: it is an excellent stimulant to the scalp and an efficient antiseptic. I have never seen a case of alopecia areata which I believed to be parasitic, or in which I was not able to demonstrate a neurotic basis. I remember one case in which these bald patches recurred for nearly a year; the patient's occupation was that of a driver of a fire engine, and when he gave that up, his hair promptly and permanently returned.

In the treatment of this condition, I regard the high-frequency current as more satisfactory than any other.

DR. M. L. HEDINGSFELD, Cincinnati: The basis of our present treatment of alopecia rest on the experiments of Lassar and Bishop, which were carried on 30 to 40 years ago on mice, rabbits and other animals. For fifteen or 20 years the results of this work were unquestioned: when they were controverted by Blaschko, who maintained that alopecia was not a parasitic condition. Blaschko carried out a series of experiments similar to those of Lassar and Bishop, and his results were absolutely negative. Treatment of this condition at the present time is based largely on the theory that it is of parasitic origin. Personally, I concur in the belief that premature baldness is not a parasitic condition. I think that too much manipulation of the scalp by rubbing and massaging is injurious both in men and in women. Premature baldness is accompanied by four cardinal symptoms, i. e., itching, dandruff, a dry or oily condition of the scalp, and, lastly, loss of hair. Dandruff is only a precursor of the loss of hair, and in order to prevent the occurrence of the latter, we must control the itching, the dandruff and the abnormal condition of the scalp. Treatment must be directed against these special conditions. Resorcin, if too strong or too frequently applied, will produce an oily condition of the scalp. An oily scalp may be rendered less oily, or even dry, by substituting colloidal sulphur or nascent sulphur, after the formula of Radcliffe Crocker for the resorcin.

DR. WILLIAM FRICK, Kansas City: In the alopecia accompanying syphilis the loss of hair is not always limited to the scalp. I recently saw a case in which the alopecia of the scalp was not complete, but there was a complete loss of the eyebrows and eyelashes.

DR. WILLIAM A. PUSEY, Chicago: One factor in regard to alopecia has not been mentioned and is worthy of consideration, particularly with the present fashion, and that is, excessive exposure of the scalp to sunlight. We are all familiar with the middle-aged man riding horseback or playing golf bareheaded in the forlorn hope of bringing his hair back. For many years I have regarded this excessive exposure

ure to sunlight as an exciting factor in the production of alopecia. I have noticed that many of these patients apply for treatment in the autumn, after they had gone bare-headed throughout the summer, and I was also led to this idea through the analogy of the effect of the sun's rays with those of the x-rays. We know that with highly actinic energy we can produce baldness, and I am inclined to believe that free exposure to sunlight will have the same effect. This is probably only one of many factors, and in my opinion alopecia is a condition of complicated etiology; it is not a well-grounded view that all alopecias or nearly all are parasitic.

I have never been able to convince myself of the value of many of the remedies that have been mentioned in the treatment of this condition. This is true of resorcin, with which I have had a very unsatisfactory personal experience. I know of only two remedies that have a definite value in the treatment of alopecia, namely, tar and sulphur. I have used alcohol in various combinations, and it is my impression that about as much good is accomplished by alcohol alone as when it is combined with other remedies.

DR. J. GRINDON, St. Louis: It is a popular notion that frequent washing injures the scalp, but practically, I have observed that those who are the most inveterate and constant in the practice of washing the scalp keep their hair as long as anybody else, and I always tell my patients that they can wash their heads as often as they please. Nor can I understand how the application of soap and water to the surface of the scalp can have any bad effect on the growth of the hair. In regard to medication in these cases, I have had very good results from the use of resorcin, and I agree with Dr. Kessler that solutions are usually more effective when they are preceded by the use of ointments. One of my favorite prescriptions is composed of petrolatum, salicylic acid and sulphur. I tell my patients that this application is disagreeable, but that it will probably not be necessary to continue it for longer than a month. After this I use resorcin, usually a 2 per cent. solution, either alone or in combination. In cases of well-established seborrheal alopecia I tell my patients that I do not believe that I shall ever be able to give them an actual permanent cure, but that I hope to bring about a symptomatic cure, providing they keep up the treatment indefinitely. As long as they live they will be obliged to pay some attention to the scalp in order to avoid a recurrence. So far as the effect on the scalp of exposure to the rays of the sun is concerned, I must agree with Dr. Pusey on theoretical grounds. The comparative frequency with which cases of loss of hair are observed in the autumn I attribute not to the effect of the sun's rays, but rather to the fact that there is natural loss of hair at that period of the year, whether one plays golf bareheaded or not. The x-ray, in small doses, causes a growth of hair, while large doses produce a loss, and the actinic rays from the sun in such doses as we get them, probably stimulate the growth of hair. Our ancestors, who wore no clothing at all, had hair all over their bodies.

DR. J. B. KESSLER, Iowa City: I have in mind a case of universal alopecia in a boy of 18 in whom the condition has now lasted about 2 years. With the exception of two or three little stubs, his body and scalp are completely bare. He has been examined by a neurologist and his blood has been examined with entirely negative results. I have been unable to find the cause of the alopecia or a remedy for it.

DR. FRANCES ROWLEY, Galveston: Has anyone studied this matter with reference to the diet of the patient? Has the nitrogenous metabolism been investigated, or would these patients receive any benefit by increasing the sulphur?

DR. C. J. WHITE, Boston: The diversity of opinions expressed well illustrates the fact that we really do not know anything about this subject scientifically. We have our pet theories, and we reason largely by analogy. I agree with Dr. Pusey in regard to the effect on the hair of over-exposure to sunlight. I believe that the scalp and hair are supposed to have a certain amount of grease, and if we expose the scalp to the sun, we remove the greasy element and the hair becomes bleached. For the same reason, constant washing of

the head or over-treatment of the scalp is equally disadvantageous. This history of too much sun or too much washing I have frequently obtained from persons who were prematurely bald.

My colleagues and I in Boston have never derived much benefit from the use of resorcin in this disease. If it is applied strong enough to do any good, it inflames the scalp. As to a possible deficiency of sulphur in the economy, to which Dr. Rowley referred, I do not know whether any scientific work has been done in that direction, but I have given that drug internally in one of its several forms without resulting benefit.

I tell my patients to use a hair brush as little as possible unless it is a clean one, and instruct them to sterilize it by placing it in the sun for a few hours at least once a week. I agree with Dr. Dyer that the hair brush is a very common cause of the persistence of dandruff. In treatment in general, I have tried all the various ointments, and in my hands they did not work so well as the two lotions that I have described. I believe that women are affected with alopecia oftener than men, but there are cases in which men feel more keenly than women the loss of their hair. As to the various etiologic factors of alopecia areata referred to by Dr. Knowles, I do not think we know the true cause of the affection, but I believe that in some specific organism plus the stimulus of a nervous breakdown or sudden shock or the debilitating effect of slow sepsis from carious teeth we have a reasonable theory of the origin of this disease.

THE EXTERNAL PREPARATIONS OF THE U. S. P. AND THE NATIONAL FORMULARY *

C. S. N. HALLBERG, Phm.D., M.D.
CHICAGO

THE U. S. PHARMACOPEIA

The external preparations of the U. S. P. comprise some 55 articles representing the following classes:

Unguenta	Linimenta
Cerata	Colloidia
Suppositoria	Cataplasmae
Oleata	Chartae

Previous to the last revision these preparations were designed from a purely pharmacal standpoint: that is, the selection of the vehicle—the forming substance—was governed primarily by pharmaceutical considerations, so as to insure stable and otherwise superficially satisfactory preparations.

Having immediate charge of these preparations in the last revision, it was our good fortune to receive suggestions from many medical specialists, ophthalmologists, gynecologists and dermatologists, such as Dr. W. L. Baum of this Section, and the formulas for these preparations were for the first time revised on a therapeutic basis. Since they have proved uniformly satisfactory pharmaceutically, it might be well here briefly to consider these preparations according to their classification and therapeutic groupings, in order to determine whether practice has demonstrated the correctness of the theoretic considerations on which they were severally formulated, and it is hoped that the fullest discussion and criticism may obtain among those who use these preparations.

* The author of this paper, being now engaged in the revision of the U. S. P. and the N. F., desires physicians to report to him any criticism on these preparations, particularly the newer ones taken from the British Codex, and also any additions that might be sufficiently valuable or extensively used to warrant admission to either the U. S. P. or the N. F. Address C. S. N. Hallberg, 74 E. Twelfth Street, Chicago, Ill.

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

UNGUENTA—OINTMENTS

Impalpable mixtures of medicinal agents and a fatty vehicle, soft solids, melting at the body temperature, intended for external application or inunction. They may be grouped therapeutically according to the function of their respective vehicles:

1. *Epidermatic*.—Non-penetrative, non-absorptive, protective, antiseptic, etc.

Vehicles: Soft paraffin (petrolatum, etc.).

PREPARATION	PRINCIPAL INGREDIENT	PROPORTION
Unguentum acidi borici—	boric acid	10%
phenolis—	phenol (carbolic acid)	3%
zinci stearatis—	zinc stearate	50%
hydrargri diluti—	mercury	33%

2. *Endermatic*: Semipenetrative or semiabsorptive emollient, nutritive, astringent, etc.

Vehicle: Animal or vegetable fats, oils or waxes—lard, suet, almond oils, hydrated wool fat.

PREPARATION	PRINCIPAL INGREDIENT	PROPORTION
Unguentum acidi tannici—	ac. tannic,	20%
aquæ rosæ—	rose water,	20%
belladonna—	ext. belladonna,	10%
chrysarobini—	chrysarobin,	5%
diachylon—	lead plaster,	50%
hydrargyri—	mercury,	50%
hydrargyri nitratis—	mercury nitrate,	10%
iodi—	iodin,	4%
iodoformi—	iodoform,	10%
picis liquidæ—	tar,	50%
potassii iodidi—	potass. iodid,	10%
stramonii—	ext. stramoni,	10%
sulphuris—	sulphur, washed,	15%
veratrinæ—	veratrin,	4%
zinci oxidi—	zinc oxid,	20%

Vehicle: Hydrated wool fat and petrolatum, equal parts.

Unguentum hydrargyri ammoniati,	10%
hydrargyri oxidi flavæ,	10%
hydrargyri oxidi rubri,	10%

3. *Diadermatic*.—Penetrative or absorptive—systemic or constitutional.

Vehicle: Hydrated wool-fat:

Lanoleum hydrargyri—50 per cent., not official.

CERATA—CERATES

Mixtures of fats, waxes, sometimes resin, of hard consistency, softening by heat, readily spread on cloth, adhering to the part applied. To serve as protective dressing or to produce antiseptic, astringent or vesicating effects.

PREPARATION	PRINCIPAL INGREDIENT	PROPERTY
Ceratum—		protective.
camphoræ—	linim. camphor,	10% antiseptic.
plumbi subacetatis—liq.,	20%	astringent.
resinæ—		discutient.
resinæ compositus—		discutient.
cantharides—	32%	vesicant.

EMPLASTRA—PLASTERS

Mixtures of medicinal agents with lead plaster, rendered pliable by admixture with rubber, hard solid, readily softening so as to be spread on cloth or fabric, adhering to the skin-part to which it is applied. To serve as protective or supportive or to exercise specific effects.

PREPARATION	PRINCIPAL INGREDIENT	PROPERTY
Emplastrum plumbi—	diachylon, lead oleate.	
adhesivum—	rubber, petrolatum,	2% anodyne.
belladonna—	ext. belladonna,	30% rubefacient.
capsici—	leoresin capsicum	alterative.
hydrargyri—	mercury,	33% anodyne.
opii—	ea. opium,	6% stimulant.
saponis—	sona	10%

The plasters of the present Pharmacopeia, all containing adhesive plaster as the vehicle, easily prepared and readily spread, are a vast improvement over the former "pitch plasters." Being endermatic, they exert the action of the respective medicinal agents, in which respect they differ from the commercial rubber plasters which are simply adhesive, do not permit any penetrative effect and are therefore therapeutically inert.

SUPPOSITORIA—SUPPOSITORIES

Mixtures of the medicinal substances and a fatty or gelatinous vehicle readily fusible at the body temperature and made into different shapes for introduction into the various orifices of the body.

Three different kinds as to size and shape of suppositories are official.

1. *Rectal*.—Cone-shaped, weighing 2 gm.; vehicle theobroma oil.

2. *Urethral*.—Pencil-shaped, weighing from 1 to 2 gm.; vehicle glycerinated gelatin or theobroma oil.

3. *Vaginal*.—Subglobular or ovoid, weighing from 4 to 10 gm.; vehicle glycerinated gelatin or theobroma oil.

There are, besides, glycerin suppositories gelatinized by soap to permit of being made into dosage form for facile introduction in the rectum, there to act as a solvent and thus produce prompt evacuation. The true suppositories, on the other hand, being analogous to ointments or cerates, present to the surfaces the most intimate admixture of the various antiseptic, astringent, anodyne, etc., agents for the most favorable action on the parts to which applied.

While the selection of theobroma oil as a vehicle for rectal suppositories cannot be improved on, a non-fatty vehicle is preferable for those intended for urethral and vaginal use. Glycerinated gelatin is therefore given the preference, although the choice of also using theobroma oil is left free to the practitioner.

The reason for this distinction in the vehicle for these different kinds of suppositories is based on the information of clinical observers that, while the rectal secretions are normally alkaline and therefore a fatty vehicle is appropriate, the secretions of the genito-urinary organs being normally acid, a fatty vehicle would be less desirable and hence the choice of a non-fatty vehicle would be better adapted to the mucous surfaces under such conditions.

The choice of glycerinated gelatin for this purpose leaves nothing to be desired from a pharmaceutic standpoint, the suppositories being soft and flexible and owing to the great proportion of glycerin contained (about 50 per cent.) retaining their solubility for any reasonable length of time. With the use of the official gelatinum glycerinatum, these suppositories are readily and quickly prepared, the only requirement being the variously shaped molds.

Whether or not this distinction in vehicle in the different kind of suppositories is really of therapeutic advantage has not been so far generally demonstrated, since seldom is any other vehicle than theobroma oil specified, no matter what kind of suppositories are required. It is hoped that this question will be discussed so that the Committee on Revision will have the benefit of the experience of clinicians.

OLEATA—OLEATES

The official oleates are formed by direct union of the base with oleic acid. They belong to the so-called "insoluble soap." To the best of our knowledge oleates are only endermatic and not diadermatic; that is, they penetrate into the skin but do

not pass through so as to have systemic effect. The following official are saturated oleates:

Oleatum hydrargyri—(25 per cent. Hg oxid).

Oleatum quiniæ—(25 per cent. quinin alkaloid).

The following are solutions of alkaloidal bases in oleic acid in excess. In the first three olive oil is substituted for about one-half the amount of oleic acid. The advantage of this has been questioned and deserves clinical observation.

Oleatum atropinæ.	2%	Oleatum veratrinæ.	2%
Oleatum cocainæ.	5%	Oleatum aconitinæ.	2%

Zinc oleate is a fine dry powder of a soapy feel valuable as a mild antiseptic and astringent "dusting powder."

COLLODIA—COLLODIONS

Solutions of medicinal substances in collodion, a solution of pyroxylin in ether-alcohol, which being applied with a pencil quickly dries and leaves an impervious film.

The following are official:

Collodium—	collodium flexile—	
acidi tannici—	(styptic),	20%
cantharidatum—	(blistering),	60%
iodatum—	(iodized),	5%
collodium iodoformatum—	(iodoform),	5%
salicylatum comp.—	(corn collodium),	
tigli—	(croton oil),	10%

THE NATIONAL FORMULARY

While not so important a work as the U. S. P., the National Formulary contains many preparations extensively used by physicians; and now is the time to make such additions and corrections as may be advisable, since its revision is now proceeding.

The following several classes of preparations for external or local use are included and it is the desire of the Committee to be informed by physicians of what criticism they would make on these various formulas; also what other preparations they would propose for admission.

GLYCEROGELATINA—GLYCERO-GELATINS

Medicinal agents incorporated with a 25 per cent. solution of gelatin in glycerin. Especially useful as a dressing where bandages are inadmissible. Prepared from the official gelatinum glycerinatum by simply incorporating the medicinal agent, first levigated with glycerin, with the melted glycerogelatin. The jelly is melted by placing the container in hot water, when it is applied with a camel's-hair pencil.

Glycerogelatinum—	acidi salicylici,	10%
	iodoformi,	10%
zinci durum—	firm zinc glycerogelatin.	
zinci mollis—	soft zinc glycerogelatin.	

PASTA DERMATOLOGICA—DERMATOLOGIC PASTES

Ointment-like mixtures of starch, dextrin, zinc oxid, calcium carbonate or sulphur, made into a paste with glycerin, soft soap, petrolatum, lard or other fat, with antiseptic or astringent agents.

Pasta dextrinata—Equal parts dextrin, glycerin and water.

ichthyoli—	Unna—ichthylol,	25%
naphtholi—Lassar—	beta-naphthol,	10%
resorcinolis mitis—Lassar—	resorcinol,	10%
zinci—Lassar—	zinc—salicyl,	2%
zinci mollis—Unna—	soft zinc paste.	
zinci sulfurata—Unna—	sulphur præcip.,	10%

STILI DILUBILIS—UNNA PENCILS

Stilus acidi salicylic dilubilis,	10 per cent.
Stilus cocainæ dilubilis,	5 per cent.

UNG. RESORCINI COMP.

This ointment, containing resorcinol, zinc oxid and bismuth subnitrate, each 6 parts, and oil of cade 12 parts, is extensively employed. The preparation discolors, but when the oil

of cade is replaced by oil of birch (ol. rusææ) 6 parts (instead of 12 parts) a superior ointment is obtained. The opinion of physicians is decided on this.

UNGUENTA EXTENSA—SALVE-MULLS

Medicated cerates to be spread on gauze for continuous application to avoid maceration.

Ung. extensum zinci,	10%
hydrargyri chloridi corrosivi,	2 per mille
salicylatum,	10%
creosoti salicylatum.	

The following ointments of the British codex may also be of service:

Unguentum capsici (24 per cent. capsicum infused).
creosoti, 10 per cent. petrolatum.
suprarenalin, 10 per cent. suprarenalin.

Petrolatum combined with ammonia soap is used as a vehicle under the following titles:

Petrolatum saporatum liquidum—liquid petrox.
Petrolatum saporatum spissum—solid petrox.

These are rarely used except as vehicles for various potent agents; iodine, phenol, etc. The Latin title is unwieldy and becomes more so when linked to a specific name.

PAROGEN

Under the title "Parogen" the British Codex contains the following formula containing 50 per cent. less liquid paraffin (liquid petrolatum) than that of the present N. F.

Parogenum—parogen: Syn. liquid parogen; vaso-liniment; oxygenated paraffin. Liquid paraffin 40; oleic acid 40; alcohol ammon. (5%) 20. Mix and agitate until a clear solution is obtained.

Also the following combinations, all made with the liquid parogen:

Parogen chloroformi camphoratum—camphorated chloroform parogen.

Camphor 37.50; chloroform 25, dissolve, add parogen 37.50.

Parogenum creosoti—creosote parogen—

Creosote 5; parogen 95; mix them.

Parogenum empyreumaticum—empyreumatic parogen.

Oil of cade 25; parogen 75; mix them.

Parogenum eucalyptolis—eucalyptol parogen.

Eucalyptol 20; parogen 80; mix them.

Parogenum guaiacolis—guaiacol parogen.

Guaiacol 20; parogen 80; mix them.

Parogenum hydrargyri—mercury parogen.

Mercury 30; wool fat 15; triturate till metallic globules cease to be visible, then add thick parogen, 55.

Parogenum ichthamolis—ichthamol parogen.

Ammonium ichthosulphonate 10, parogen to 100, dissolve and strain after standing.

Parogenum iodi—iodine parogen.

Iodin 10; powder and triturate till dissolved in oleic acid 40; mix with liquid paraffin 40 per cent, then alcohol ammon. (5 per cent.) 10.

Parogenum iodi dilutum—diluted iodine parogen.

Iodin parogen 60; parogen 40; mix.

Parogen iodoformi deodoratum—deodorized iodoform paraffin.

Iodoform 3, eucalyptol 3, parogen to 100. Dissolve iodoform in the parogen by warming cautiously; then add the eucalyptol.

Parogenum mentholis—menthol parogen.

Menthol 2, parogen to 100; dissolve by warming cautiously.

Parogenum naphtholis—naphthol parogen.

Naphthol 10; parogen to 100; triturate till dissolved.

Parogenum picis—tar parogen.

Tar 25, parogen to 100; mix them.

Parogenum salicylatum—salicylated parogen.

Salicylic acid 10, parogen to 100; powder and triturate till dissolved.

Parogenum sulphuris—sulphur parogen.

Sulphur subl. 3, linseed oil 37; dissolve by aid of heat; then mix with parogen to 100.

Parogenum sulphuris compositum—compd. sulphur parogen.

Sulphur parogen 10, oil of cade 10, thymol 0.3, eucalyptol 3, oil of turpentine 30, parogen to 100. Dissolve the thymol and eucalyptol in the oil, mix with the parogen.

Parogenum terebinthina—turpentine paraffin.

Venice turpentine fact. 20, parogen to 100; mix them.

Parogenum spissum—thick parogen.

Hard paraffin 12, liquid paraffin 48, oleic acid 30, alcohol ammon. (5 per cent.) 10. Melt the hard paraffin; add the liquid paraffin, then the oleic acid and the alcohol and continue the heat on a water-bath until the product weighs 90.

The following single generic names are suggested for the same reasons as was the parogenum for petrolatum saponatum. If physicians are expected to use these preparations, the generic titles must be composed of single words otherwise when the specific name is added they become too cumbersome.

LANOLIMENTA—LANOLIMENTS

Lanolimentum mentholis—menthol lanoliment.

Menthol 5, hydrous wool-fat to 100; mix.

Lanolimentum mentholis salicylatum—salicylated menthol lanoliment.

Menthol 5, methyl salicylate 10, hydrous wool-fat to 100; mix.

Paraffinoleum mentholis—menthol paraffinol—liquid petrolatum and menthol.

Menthol 2, liquid petrolatum to 100. Mix and strain if necessary.

Paraffinoleum eucalypti—eucalyptus paraffinol.

Oil eucalyptus 5, liquid petrolatum to 100; mix.

Paraffinoleum thymolis—thymol paraffinol.

Thymol 1, liquid petrolatum to 100. Dissolve by trituration in a warm mortar.

Paraffinol phenolis—phenol paraffinol.

Phenol cryst. 1, liquid petrolatum to 100. Dissolve by trituration in a warm mortar.

74 East Twelfth Street.

MEDICO-PHARMACEUTICAL ETHICS *

A. S. MUSANTE, PH.G., M.D.

SAN FRANCISCO

The heading of this paper sounds more like the title of a book on the subject than that of a more or less haphazard essay, but no other short caption suggested itself for a treatise on the proper attitude and mode of reciprocal action that should exist between the members of the professions of medicine and pharmacy.

No historical survey of the origin of either one of these callings from the other will be attempted, for some medical writers declare that pharmacy originally sprang from the forced surrender of the custom of primeval healers of preparing their own drugs, in order to keep abreast of more related advances of their work, and the pharmacists retort that there were no doctors at first, the healing art having been practiced by the ancient botanists, from whom pharmacy, more than medicine, can claim heritage. Nor will the subject be treated academically. An effort will be made to point out and describe some of the real and imaginary evils that have crept into the practices of medicine and pharmacy, which make pharmacists and physicians antagonis-

tic professionally to one another, and to suggest how these unethical errors can be corrected.

COMMON VICES

I shall get at the substance of the matter instantly by stating that there are some evils that are common to both professions, among which may be mentioned, first, the payment of percentages by pharmacists and physicians for patients referred; second, the recommendation of a certain physician or drug-store because of this commission; and, third, the expression of derogatory opinions against the members of the medical and pharmaceutical fraternities, because of the facts that, on the one hand, the physician in question will not send patients or pay the commissions others do, and, on the other, the pharmacist is not one from whom the physician can expect a percentage from his prescriptions.

There is only one side to the first of these three evils and that is this: The payment of a percentage by a pharmacist to a physician for prescriptions directed to his store is wrong, as it is practically collusion between the prescriber and dispenser in an effort to overcharge the patient. It only means that the patient is going to be forced to pay an additional amount to cover the commission paid. A physician should charge a sufficiently remunerative fee to satisfy himself financially and should not expect in addition a share of what the patient is paying (supposedly) for his medicine. It is equally unjust for the pharmacist to expect a commission for work referred to the physician, as this recommendation would then be made mostly for gain and, in this way, only physicians paying this commission, rather than those who are capable, would be named to the inquiring. The recommendation of a certain physician by the pharmacist should always be made because it is thought that that physician is the best fitted to advise the patient; and the medical man can feel justified in referring the sick to particular drug-stores only when he is of the opinion that in these places his prescription will be more accurately filled than in other pharmacies; in this way using his expected care that incompetent men will not be given a chance to make any errors.

The last of these common faults, that of making belittling remarks about either certain physicians or certain druggists who do not further the interest or meet the approbation of a member of either profession, is wrong because the physician or pharmacist often is mistaken in his opinion, and, again, because it may shake the confidence of a patient in his physician when the latter is censured and therefore tend to lessen the likelihood of the patient's cure. As pharmacists or physicians, we should not speak against one or the other. We can and should refuse to recommend to patients anyone who is incompetent, but should not speak evil of him. We only nullify each other's efforts in performing the noble work of aiding the sick when we speak against members of either profession. Let us recommend certain physicians or certain pharmacists when asked or when we think it necessary; but let it always be for meritorious reasons and never with the consideration of possible gain or revenge in view. In this way, each will reap his just reward and medicine and pharmacy will move on, hand in hand, in the work of humanity to which they should be devoted.

Let us now take up the consideration of evils confined almost entirely to one or the other profession, and we shall find much to speak about. The pharmaceutical evils are principally drug-store prescribing, substitution, the pushing of patent medicines, bad dispensing, and

* Read at the Annual Meeting of the California Pharmaceutical Association, San Francisco, May 19, 1910, at which the San Francisco County Medical Society was

the practice of exposing mistakes supposed to have been made by prescribers. The medical profession is called on to defend itself against the charges of dispensing medicines, deficient knowledge of material medica and prescription-writing, which is responsible for the ordering of unsightly mixtures, overdosage and the prescribing of patent and proprietary medicines, as well as special makes of official preparations, and the custom of blaming the pharmacists for failure to obtain certain therapeutic results, a supposed color, odor or taste of a mixture prescribed. These topics cover the sources of complaint usually found when a threatened breach is wedging in between the professions, but do not include matters that often cause internal dissension between pharmacists themselves, like higher educational requirements, cut-rate methods and side-lines; or matters confined within medical ranks, such as advertising and specialization; or the subject of renewals of prescriptions, the ownership of the latter and the matter of the enforcement of the pure drug acts, which are regulated by law in many states.

PHARMACEUTIC TRANSGRESSIONS

Taking up the pharmaceutic vices, one by one, let us define them and see how far—if at all—they are permissible, and offer some suggestions for their correction or regulation.

Drug-Store Prescribing.—In the literature and by personal experience, I find that most of the antagonism felt toward the pharmacist by medical men is on account of drug-store prescribing, which includes treatment over the counter and in the back room. That it is wrong even to the patient, for the prescriptionist to attempt to diagnose or cure diseases, either by prescribing medicines or by giving treatments, as in the form of irrigations in venereal diseases, there is no doubt. The argument often advanced that this practice results in a financial loss to the physician as well as to the druggist, is not the strongest objection to this evil. For no one who realizes how difficult it often is for the skilled physician to diagnose and treat the symptoms of which the average patient complains can fail to see how impossible it is for the pharmacist, who has received no special training in these matters. Consider how misleading a symptom must be to one who knows nothing about reflected pain or who has never heard of an extra-uterine pregnancy! "But," some will say, "that does not apply to diseases which are self-evident, as for example, gonorrhea or syphilis." It does not make any difference, for it is often just as hard to treat these diseases successfully as it is to diagnose others. This statement is borne out by the experience of eminent gynecologists who have found that about 12.5 per cent. of all operations performed on women are caused by uncured gonorrhea affecting their husbands, who often were assured that they were cured and also by the startling fact that this disease is responsible for 80 per cent. of deaths from disorders peculiar to women.

But how far can the pharmacist go before he can be deemed guilty of intruding on the physician's domain? This is a limit on which not all agree. Some say that a prescriptionist should never give medicine without an order from a physician, but is this practical? It seems that the best compromise that has been offered is that a pharmacist should never try to diagnose a case, but should explain to a patient that the best thing would be to see a physician, as his opinion may be necessary, and then, if the customer refuses to do this, the druggist should give some unharmed mixture for the symp-

tom complained of with final directions to see a physician if not relieved. A member of the pharmaceutic profession is presumptuous when he fails to tell the sick that pharmacists are not able or taught to diagnose diseases and that it is the physician's work to do so, just as it is presumptuous for the physician to give a price on prescriptions without knowing how they are figured.

Substitution.—Substitution or omission of ingredients in a prescription is unjustifiable and criminal. The physician and patient have a right to insist that the medicines prescribed are dispensed and anyone who wilfully deals out one substance for another or who leaves out any of the contents ordered in a prescription is deserving of the bitterest condemnation from both professions. But there is an aspect to this subject not often considered by my exacting colleagues, and that is the custom of specifying the manufacturer's name when official preparations are prescribed. In rare cases this is along the lines of safety, but it can and is often carried out too far. For example, let me tell a story which Prof. W. M. Searby narrated to me, touching on this point. A pharmacist who had a large number—I think it was fifteen—fluidextracts of ergot, was handed a prescription in which a new inferior make was specified. This was an urgent case and the medicine was needed, for the messenger said the physician was waiting to use the ergot on the patient, who was suffering from a post-partum hemorrhage. So the pharmacist gave an excellent preparation of the drug instead of the one called for, which he did not have. Was he right in what he did? He certainly was, for it might have been the cause of a woman bleeding to death if, actuated by exaggerated ideas of avoiding substitution, he had given back the prescription and not dispensed what he did. Many other cases like the above happen and a drug-store must be kept stocked with many makes of certain preparations which are exactly the same in value. It would be better for physicians to specify the maker's name only when there is some good reason, leaving the pharmacist, who is better trained to choose between good and bad preparations, responsible for the quality of all drugs, as he is for ingredients of unspecified manufacture.

Crude Dispensing.—By the evil of bad or crude dispensing is meant the turning out of mixtures of offensive appearance and taste and doubtful therapeutic value because of inability to compound properly. Every physician has noticed this fault when for some reason he has had to write some prescription, not simple to dispense, a second time for the same patient, who has gone to a different pharmacist each time. I am not referring to those cases in which the trouble is due to the inability of the physician to prescribe, but to those instances in which in one drug-store the pharmacist will understand how to combine the ingredients ordered and turn out an excellent preparation, while at other places the compounding is done by men who do not know the proper way and hand a patient an abominable combination. So much for bad dispensing.

Exposing the Mistakes of Physicians.—This is just the course which the pharmacist should not take, considering how human it is to make blunders, especially in the crucial situations in which the prescriber often finds himself. Neither by word nor by sign should the patient know of any supposed error, but the pharmacist should communicate with the physician about the matter and, if this is not possible, the correction should be made by the prescriptionist and the physician be positively informed. It is wrong to be apathetic and to return the prescription, as the mistake might be overlooked in

another place and a fatality result. It follows that a physician should always act in a gentlemanly manner when called on to correct a mistake, and should feel that a dispenser is acting along the lines of carefulness and safety in communicating with the physician even if the error can be shown to be only apparent.

Pushing the Sale of Patent Medicines.—The matter is one almost wholly pharmaceutic. Let us pass it by thus: Most of the prominent pharmacists would gladly do away with this feature of their business if it meant the abolishment of the public evil of self-medication, but, as it would be taken up by department-stores and the business increased rather than lessened, there is no reason why they should not keep these nostrums. When it is considered also that often even physicians prescribe these remedies, it seems unreasonable to expect a drug store to do without them. I believe, however, that the pharmacist should never recommend any of these preparations, but should furnish them only when called for. For druggists to push certain compounds of their own manufacture, like insect-destroyers and spring medicines for which customers rarely apply to a physician, is not much of a breach, especially when those are recommended to be "just as good" or better than widely advertised, but not so effective, nostrums. Care in proclaiming the virtues of these preparations should be exercised and no exaggerations indulged in that might offend broad-minded and intelligent physicians—no matter how great an impetus would be given to these goods.

MEDICAL EVILS

And, now, let us review the transgressions of which the medical profession seems to be guilty and reason out how much can be said to be excusable.

Dispensing by the Physician.—Dispensing at the office and at the patient's house is the oldest charge hurled at physicians. Let it be understood at the start that no reasonable pharmacist can deny that this practice is in order when immediate medication is needed or when the patient lives at a distance too remote from a drug-store. It was said in defending the physician against exposure of his errors that the nature of his work is such that mistakes often creep into his prescriptions; therefore the fact is evident that somebody must act as a checker in dispensing his orders, and who is better qualified than the pharmacist? Many times also the physician is wrong in his idea of the dosage of some powerful drug appropriate for the occasion, but rarely used, and it is here that the knowledge of posology taught in the college of pharmacy should be brought into play. The pharmacist also has a better opportunity to make sure, as he can look these matters up in the books on materia medica without exciting suspicion. It follows also that the physician cannot dispense as competently as the pharmacist, whose ability to do so is dependent on his knowledge of and experience in mixing drugs. Therefore, a physician who makes it a practice to dispense his own prescriptions acts detrimentally to his patient, the pharmaceutic profession and his brother practitioners, in the latter case because of the unfair financial advantage gained by the custom.

Inability to Prescribe.—The inability to prescribe properly demonstrated by so many physicians is due to insufficient knowledge and practice in materia medica and is fundamentally responsible for its sequel, the ordering of proprietary and patent medicines. It probably would result in making better therapists—

though not as scientific laboratory men—if medical colleges would encourage prospective medical students as much in taking a course in pharmacy as a pre-medical study as they do in the completion of a purely scientific curriculum, the substance of which is hardly ever used by the average practitioner.

Illegible Writing.—That the notorious habit of prescribers of writing illegibly has not been responsible for more trouble is due to the extraordinary skill with which the pharmacists decipher the different parts of prescriptions. This subject has received legal attention in some countries, and carelessness in ordering has been made a crime.

Overdosage.—Overdosage and the writing of freakish physical and chemical incompatibilities only serve to bear out what was said about the limited idea of materia medica and pharmacy retained by medical men from the teaching given in these subjects at most medical colleges. As better courses in these subjects are being given now than five years ago, the reform in this deficiency is bearing fruit.

Prescription of Proprietary or Patent Medicines.—The use of ready-made proprietary or patent medicines has already been well thrashed out and will not receive the attention here it otherwise would. As this largely results from not knowing how to combine the remedies desired in a particular case in the most palatable and compatible form, it has decreased as the movement for a better knowledge of materia medica has progressed. This movement will spread until every physician will have a better idea of the drugs contained in the United States Pharmacopeia and National Formulary, using other drugs only when a real improvement of benefit to his patient is exploited. How few of the proprietaries of the last decade really were the products of advanced pharmacy, and how many were only well-known and often worthless drugs, done up in an elegantly deceiving style! In any of the big prescription pharmacies one will find dozens of preparations that once reigned supreme in their separate fields and are now condemned to the oblivion of the top shelves or the back room. In speaking of substitution the often unnecessary habit of specifying the maker's name when an official preparation is wanted was commented on sufficiently.

Exposing Mistakes in Dispensing.—Reciprocally the same feeling should manifest itself when the pharmacist is thought to have made a mistake in the dispensing of a prescription as was mentioned in discussing the delicate way a physician's error should be called to his attention by the prescriptionist. If a medicine has not the desired effect or does not come up to expectations as to palatability or appearance, the blame is not always with the dispenser. The physician may have forgotten to order some ingredient or may have prescribed something of which he did not know the properties as well as he might. If the medical man will use his ingenuity as often as his pharmaceutic friend does, the patient will not have his confidence shaken in the latter and will probably not be as suspicious of the physician himself. Neither the pharmacist nor physician should forget the just defenses of idiosyncrasy and tolerance in any case in which these seem to be the explanation of the patient's complaint against one or the other.

SUMMARY OF SUGGESTIONS

In conclusion, let the members of both professions feel the need of co-operation with each other; let pharmacists, out of consideration for their medical friends,

refuse to do something and insist on doing others, and let the latter act reciprocally. At the same time nothing should be done which is unjust to the public. Therefore the practice of paying commissions to pharmacists for work referred, or to physicians for prescriptions, should be absolutely discontinued. Recommendation of either prescriber or dispenser should always be based on merit and not on expected financial gain. Opinions derogatory to any member of either calling should be indulged in only in extreme cases.

Pharmacists should prescribe only in rare cases, including poisonings and instances in which first aid is needed before the physician arrives. Skill in dispensing should be possessed by all pharmacists and substitution never practiced. Errors on the part of physicians should be handled so that the patient does not know of them and corrections explained where the medicine is urgent and it is impossible to reach the physician. The rule in the matter of handling patent and proprietary preparations should be "Buy what is called for and sell on demand only" (Coody).

Physicians, on the other hand, should not dispense their own prescriptions, except in cases in which urgency or remoteness from a drug-store demands it; should possess a proper knowledge of *material medica* and prescription writing, and write legibly and order carefully, avoiding the unnecessary use of ready-made preparations and too extended specification of the manufacturer's name of official remedies, and should not expose to the patient blunders thought to have been committed by the pharmacist when unsatisfactory results are obtained.

Joint meetings where subjects of a kindred nature could be discussed are also advisable, so that such topics as those here suggested and others could be thrashed out.* The two professions should act in unison in the United States Pharmacopeia and

I think that, as our differences are being adjusted, we are again making it plain to the pharmacist and to the physician just where the one is intruding on the ground

* Some articles dealing with the relationship between physicians and pharmacists, which have appeared in medical journals, are here cited for the benefit of those who may wish to look up some of them:

- Anderson, W. C.: Relations of the Physician and the Pharmacist. *New York State Jour. Med.*, August, 1909.
Barbour, M.: The Relation of Medicine to Pharmacy, *New York Med. Jour.*, April 2, 1910.
Coody, A. S.: Pharmacists and Physicians, *Proc. Am. Pharm. Assn.*, 1908, p. 1056.
Dimmitt, A.: Relationship between Physicians and Pharmacists, *Kentucky Med. Jour.*, June, 1908.
Earp, S. E.: Relation of Physician and Druggists, *Jour. Indiana State Med. Assn.*, November, 1908.
Francis, J. R.: Relation of the Pharmacist to the Physician, *Jour. Indiana State Med. Assn.*, November, 1908.
Hemenway, H. B.: Physicians and Pharmacists, *Chicago Med. Recorder*, 1909.
Killingberg, W. A.: Between Doctor and Druggist, *Jour. Kansas*, 1909.
Marshall, W. C.: Relation of the Pharmacist to the Practice of Medicine, *Virginia Med. Semi-Month.*, Aug. 27, 1909.
McCloskey, C. J.: Doctor and Druggist, *Med. Soc.*, New Jersey, May, 1908.
McCormack, J. N.: What Should be the Relations of Pharmacists and Physicians? *Druggists' Circular*, October, 1907.
McKee, E. S.: Medico-Pharmaceutical Graft, *Pacific Pharm.*, May, 1908.
Mittelbach, William: Union of Physician and Pharmacist, *Druggists' Circular*, March, 1907.
Ormsbee, J. L.: The Physician's Relation to the Pharmacist, Practically Considered, *Jour. Missouri State Med. Assn.*, February, 1909.
Romig, E. B.: The Pharmacist as a Professional Man and His Relation to the Physician, *West Virginia Med. Jour.*, December, 1908.
Rusby, H. H.: Cooperation of Physicians and Pharmacists, *Druggists' Circular*, October, 1907.
Sutphin, P. C.: Relations that Should Exist between Pharmacists and Physicians, *Kentucky Med. Jour.*, December, 1907.

of the other. There seem to be many things too often left undone that would make up for the loss occasioned by a stricter adherence to one's own work. For example, much of the laboratory work of the physician, like the examination of blood, urine, sputum and feces, could be done for him by the pharmacist, as courses are given in most colleges in these branches; in this way the pharmacist becomes the co-worker of the physician in the diagnosis of the diseases of which mankind is affected.

Whether everyone will agree with all I have said or not, is it not better to give these matters attention? They mean much to both professions. As these and other infringements that often wedge in between these allied professions become adjusted we should have a better pharmacy and a better medicine, and together they will battle in the war on the ailments "that flesh is heir to." I can close in no better way than in the words of Dr. H. H. Rusby: "We are not taking part in this life for all that we can get out of it. The very best part is its voluntary sacrifices, the best part of our possessions, that part which we freely give away because it will do better work elsewhere than if retained in our own possession."

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THE NEW TEST FOR CANCER OF THE STOMACH, WITH SUGGESTED IMPROVEMENTS *

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I. INTRODUCTION

Medical means have been of no avail in the treatment of cancer. The only resort is surgery. If we succeed in radically extirpating the cancer *in toto*, the chances of a permanent cure are good. The importance of an early diagnosis in cancer in general, and in carcinoma ventriculi in particular, is obvious. Unfortunately in cancer of the stomach an early diagnosis is rather the exception than the rule, and in most cases, when we learn the diagnosis, we also learn the prognosis. The diagnosis of cancer of the stomach rests on the history of the patient; on the absence of free hydrochloric acid; on the presence of lactic acid, Boas-Oppler bacilli, a palpable tumor and occult blood; and on the occurrence of a variable degree of motor insufficiency. No single factor is diagnostic in itself, but a combination of these features is required for the establishment of the diagnosis. Unfortunately such a combination is not always present, and when it is present, it is not discernible at a very early stage of the disease. The Solomon test is of very little value. Any new sign that will aid in the diagnosis of carcinoma ventriculi is more than welcome.

A few months ago Neubauer and Fischer¹ published their results of a new test for the diagnosis of cancer of the stomach: the so-called glycylyltryptophan test. In order to comprehend the rationale of this test we must understand certain principles in physiologic chemistry. Our food, as such, cannot be assimilated by the system. In order to be absorbed most food substances must be converted into simpler cleavage products. Thus pro-

* From experiments conducted in the Laboratory of Biological Chemistry of Columbia University, at the College of Physicians and Surgeons, New York, under the auspices of the George Crocker Special Research Fund.

1. Neubauer and Fischer: *Deutsch. Arch. f. klin. Med.*, 1909, xcvii, 499.

teins to be absorbed by the system, must go through a series of changes, until they reach the simplest grade. This series of changes for coagulable proteins, such as albumin, is: (1) acid metaprotein, (2) primary proteoses, (3) secondary proteoses, (4) peptones, (5) "polypeptids" and finally (6) amino-acids. Amino-acids are the simplest cleavage products into which proteins must be broken up for assimilation by the body. The hydrolytic cleavage of the proteins into amino-acids is effected by the digestive enzymes. There are numerous amino-acids, such as glycine, alanine, leucine, tyrosine, tryptophan, etc., each exhibiting characteristic properties. In a normal stomach the digestion of proteins is never carried to the amino-acid stage. It is only in the intestines that extended hydrolysis into amino-acids occurs.

Various investigators have shown that cancerous tumors elaborate a certain enzyme which exhibits strong proteolytic powers, and which is capable of converting proteins as well as simple peptids into amino-acids. Although benign tumors, as well as other somatic tissues, possess similar properties, their peptid-cleaving powers are rather weak—they never equal the powerful peptidolytic action of malignant growths. Neubauer and Fischer have contrived to utilize this fact in a new test for cancer of the stomach. They used glycyltryptophan for this purpose.

Glycyltryptophan is a dipeptid,² one of the simplest types of peptids. As a synthetic product, it owes its existence to the ingenuity of Emil Fischer, who has made some of the most important chemical discoveries of modern times. Emil Fischer succeeded in combining various amino-acids into forms that closely resemble natural proteins of the simpler types. These synthetic peptids are like proteins in responding to the hydrolytic action of proteases³ and in yielding their corresponding component amino-acids. Glycyltryptophan, as its name signifies, consists of a union of glycine and tryptophan radicals.

In making their test, Neubauer and Fischer add filtered stomach contents to a solution of glycyltryptophan. The mixture is then placed in a thermostat for about twenty-four hours. At the end of that time a test is made for the presence of tryptophan. If tryptophan is found it means, according to Neubauer and Fischer, that an enzyme present in the stomach contents has converted glycyltryptophan into glycine and tryptophan. Such a result could not be due to normal constituents of stomach contents, e. g., pepsin, rennin, lipase or hydrochloric acid, since these agents do not, under gastric conditions, split either dipeptids or proteins into amino-acids. An enzyme capable of converting glycyltryptophan into glycine and tryptophan occurs in gastric contents only in cases of malignant growths of the stomach.

Glycyltryptophan was used for this test because tryptophan, which it easily yields, may be more readily detected than any other amino-acid. No protein yields a larger proportion of tryptophan. Tyrosine is perhaps the only other amino-acid which could be employed to similar advantage in such work. Tyrosine may be easily detected by reason of its comparative insolubility and its consequent tendency to crystallize. A dipeptid yielding a large proportion of tyrosine, such as glycyl-L-tyrosine might be expected, therefore, to serve as satisfactorily in this test as that particular dipeptid did in similar

work recently by Abderhalden⁴ in another connection. The simplicity, promptness and delicacy of the bromine test for tryptophan, however, give the advantage to the compound favored by Neubauer and Fischer. That the cleavage of dipeptid in the stomach in the case of cancer is done by an enzyme secreted by the tumor, and that it is not accomplished by pepsin, was shown by Kohlenberger.⁵

NEUBAUER AND FISCHER'S PRECISE METHOD OF PROCEDURE

In applying the glycyltryptophan test, an Ewald test breakfast is extracted in thirty to forty-five minutes after a meal and filtered. Glycyltryptophan⁶ is treated with some of the filtrate. The bottle containing the mixture is placed in a thermostat for twenty-four hours. At the expiration of that period the contents are tested for the presence of tryptophan. This is done as follows: About 3 or 4 c.c. of the contents of the bottle are removed with a pipette from underneath the layer of toluol and placed in a test-tube. A few drops of 3 per cent. acetic acid solution are added. Saturated aqueous solution or bromine is then added from a pipette, drop by drop, to the stomach contents in the test-tube, until a reddish violet color appears. The appearance of this color, at times a rose-red, shows the presence of tryptophan and the test is positive.

Considerable practice is required for the accurate performance of the test in the presence of very minute proportions of tryptophan, because slight excess of bromine may make the characteristic color disappear in a moment. Large excesses may impart a lemon-yellow color to the mixture. Whenever the reddish-violet color merges into yellow, we know positively that there is an excess of bromine in the mixture.

The opening at the tip of the pipette from which the bromine solution is dropped should be a fine one, and the "bromine water" added very cautiously, drop by drop, until, in case reaction is positive, a reddish-violet color appears. If reaction is very faint the test-tube should be left standing for a while. In about ten minutes, in such cases, the reaction may become considerably intensified. Usually 5 to 7 drops of bromine water are required to bring out the reaction in 3 to 4 c.c. of contents, but sometimes 1 to 2 drops are sufficient. When that is the case it is well to let a single drop of bromine water fall on the wall of the test-tube instead of into the liquid itself, in which case the volume of delivered bromine solution is reduced to a fraction of a drop, and excess is avoided.

Instead of bromine solution, pure bromine vapor may be used. If a bottle containing bromine is tilted slightly over the mouth of the test-tube, heavy bromine vapor will fall into the test-tube and dissolve in the liquid; and the reaction will promptly appear to its maximum degree. Great caution must be exercised, in this treatment also, not to add an excess of the vapor, for an excess will make the reaction disappear at once, and a lemon-yellow color may be imparted to the contents.

Bromine itself should be handled with great care, for it is extremely irritating to the respiratory mucous

4. Abderhalden: *Ztsch. f. physiol. Chem.*, 1909, xii, 136.

5. Kohlenberger: *Deutsch. Arch. f. klin. Med.*, xcix, 148.

6. Glycyltryptophan, as prepared for the test, is a clear watery solution. It is dispensed by Kalle & Co., Bleibach a. Rhein, all ready for use in little bottles. Each bottle contains a few minims of glycyltryptophan solution with a layer of toluol over it, as a preservative. This amount of glycyltryptophan is sufficient for one test. The bottle has a mark on it up to which the filtered stomach contents is to be added. The total capacity is about 15 c.c.

2. Dipeptid—a peptid containing only two amino-acid radicals.

3. Proteases are enzymes possessing the power of splitting up proteins or peptids, e. g., pepsin, trypsin, crepsin, etc.

membrane. Under no circumstances should plain liquid bromin be mixed with the gastric contents to be tested. An aqueous bromin solution may be kept saturated by retaining in it a slight excess of the heavy, liquid bromin.

Acetic acid is added to the mixture to be tested because the reaction appears only in an acid medium, perhaps very faintly so in a neutral one, but never in an alkaline medium. Almost all stomach contents are acid and in testing them for tryptophan the addition of acetic acid may not be necessary. In mixtures of very low acidity the addition of acetic acid seems to serve a useful purpose.

SPECIAL SOURCES OF ERROR IN THE GLYCYLTRYPTOPHAN TEST

Neubauer and Fischer made a series of tests in normal and pathologic cases and were extremely gratified by the results obtained. The following sources of error in the application of the glycytryptophan test are mentioned by them:

1. *Presence of Tryptophan in the Stomach Contents.*—Neubauer and Fischer advise tests for tryptophan in the stomach contents before glycytryptophan is added. If tryptophan is found, the specimen of stomach contents should be rejected, they say, and another one subjected to the test. I do not agree with Neubauer and Fischer in this regard, as I shall show further on in this paper.

2. *Presence of Peptid-Splitting Bacteria in the Stomach Contents.*—Neubauer and Fischer have tested the effects of pure cultures of various species of bacteria on glycytryptophan and have found that some species are able to split off tryptophan. The addition of toluol to the material in the test is proposed by them as a safeguard against such bacterial action. The passage of the stomach contents through a filter, according to them, also removes the offending micro-organisms. This danger is greatly overestimated by Neubauer and Fischer.

3. *Presence of Trypsin in the Stomach Contents.*—Duodenal contents may regurgitate into the stomach and the trypsin may split up the glycytryptophan. Neubauer and Fischer exclude this latter possibility by examining the stomach contents in gross for bile, which is easily recognized by its greenish color. In the presence of manifest bile another specimen must be used for the test.

4. *Presence of Blood in the Stomach Contents.*—According to Neubauer and Fischer blood is capable of splitting up glycytryptophan and thus serving as a source of error in the test. If the presence of blood is suspected, a test such as the guaiac or benzidin test should be made for it. If occult blood is present, Neubauer and Fischer recommend that that specimen be discarded and a new one tested. The danger from the presence of occult blood is also exaggerated by Neubauer and Fischer.

Lyle and Kober⁷ who recently reported the results of their study of this test as applied to twenty-one cases concluded as follows: "Our results with this test have been satisfactory. A repeated negative reaction is very valuable. When the test is positive, the complication of a regurgitation of trypsin must be thoroughly investigated."

2. METHOD OF EXPERIMENT

I have been engaged, during the past few months, in a study of the value of this new test for cancer of the stomach in its various aspects, and my experience agrees with the results obtained by the former investigators. I wish, however, to propose some important modifications based on a study of sixty-three normal and pathologic cases in all forms of gastric disease (see Section 4, Record of Cases).

It is my conviction that the employment of glycytryptophan is superfluous. The tryptophan reaction may be obtained without it. Every test of my series of cases was a double one (one with and one without glycytryptophan), and glycytryptophan was found to be unnecessary. The reason is obvious. The enzyme secreted by the cancer is potent enough to hydrolyze protein, as well as dipeptid into amino-acids; nor does it have to do it unaided, for in the vast majority of cases the associated pepsin converts accompanying protein to peptones. There were only about two or three instances in my series of cases, in which the test was positive in the presence of glycytryptophan, but negative in the absence of that compound. On the other hand, I had some cases in which the opposite was true—in which without glycytryptophan a better reaction was obtained than with it. More than that, I received the impression that the addition of glycytryptophan may at times serve as a source of error. It is possible that some of the bottled specimens of glycytryptophan undergo spontaneous decomposition into the component amino-acids. I noticed in two tests the production of a very deep red color in the presence of glycytryptophan, whereas in its absence no reaction occurred. (In one instance a clear-cut case of chronic gastritis. See Record of Cases, special Case 39.)

These observations aroused my suspicion. On one of the two occasions referred to, there was a surplus of the specimen of stomach contents under examination. I then tested that specimen with a sample of glycytryptophan from another bottle and obtained only the faintest trace of a reaction. There appears to be no other explanation for this exceptional result, than the assumption that the first sample of glycytryptophan contained free tryptophan.

I have subjected seventeen bottled samples of our supply of glycytryptophan to tests for free tryptophan. Distilled water instead of stomach contents was added to each of these bottles of glycytryptophan.⁸ The tests gave entirely negative results in each case. It should not be forgotten, however, that suspicion was aroused in only two out of nearly 150 instances, and, therefore, the seventeen negative results would not exclude the correctness of my assumption that two of the samples employed contained free tryptophan.

There are several advantages in excluding glycytryptophan from the test. Glycytryptophan is comparatively expensive.⁹ The toluolized samples form opaque, milky mixtures with stomach contents. Detection of slight proportions of tryptophan may be very difficult, often is impossible, in such opaque media. It is the clear solution only that develops, as a rule, a distinct and unmistakable reaction. Filtering the opaque mixture does not do any good in most cases. The opacity persists in spite of repeated filtrations.

8. Each bottle contained sufficient glycytryptophan for one gastric test.

9. Material for 150 tests, imported duty-free for use in this laboratory, cost \$50.

7. Lyle and Kober: New York Med. Jour., June 4, 1910, p. 1151.

Neubauer and Fischer advise the use of a regular Ewald test breakfast extracted in thirty to forty-five minutes. I found, however, that employment of a regular dinner and extraction of some of it at a later stage of digestion (within three or four hours), served the purpose better. I convinced myself of this in connection with specimens of contents from two cases that showed marked tryptophan reactions after a regular dinner, but failed to give any reaction after an Ewald test breakfast, the stomach having been washed previously (Cases 1 and 3). Both were obstruction cases. The Ewald test breakfast is ideal for testing the secretions of the stomach, but as an aid in the test for cancer enzymes, it is much inferior to a regular dinner. There is only one class of cases for which the Ewald test breakfast may be preferred. It happens occasionally, though very rarely, in cases of stagnation, that a stomach under the influence of a heavy meal will secrete hydrochloric acid, while the light Ewald test breakfast will not cause any secretion. It will be pointed out later that hydrochloric acid reduces the activity of, or may destroy, the cancer enzyme. When a negative tryptophan reaction is obtained in a case of pyloric stenosis showing free hydrochloric acid, it may be desirable to wash the stomach and administer an Ewald test breakfast, so that the contents may possibly be free from hydrochloric acid, and the elicitation of the tryptophan reaction favored on that account. (Group 11 illustrated this point.)

Neubauer and Fischer state that "hydrochloric acid, in a strength equal to 0.36 per cent., destroys this (cancer) enzyme." While the results of my experiments corroborate this general statement, there appear to be exceptions to it. Cases 11 and 16 gave marked tryptophan reactions in the presence of considerable free hydrochloric acid.

Neubauer and Fischer further advise the application of the tryptophan test to stomach contents before adding glycytryptophan for the detection of the cancer enzyme. If a positive tryptophan reaction is obtained with bromin water, that specimen, they say, should be discarded and a new one secured. But why discard it? This response tells the facts in the case! I detected preformed tryptophan in untreated stomach contents repeatedly. I obtained the reaction directly and easily. I have obtained it frequently in contents from cancer cases but in no others! Of course, if one intends to use glycytryptophan, the course prescribed by Neubauer and Fischer is the best one to pursue, but the results of my own research warrant the conclusion that the use of glycytryptophan for the detection of gastric cancer is superfluous.

I tried the effect of adding to stomach contents protein such as fibrin, or food from the meal, with the idea of enhancing the reaction, but the results were negative.

Neubauer and Fischer state that the tryptophan reaction must be obtained in twenty-four hours, or it is of no value, since bacteria are likely to hydrolyze the dipeptid and thus produce tryptophan. They experimented with pure cultures of micro-organisms and found that certain species possess proteolytic properties. As a safeguard against this contingency, as has already been stated, they advised the addition of toluol. My experiments have dealt not with pure cultures, but with stomach contents, as such. I have kept specimens of stomach contents over a month (some specimens being devoid of free hydrochloric acid), both with and without preservatives, and, except in carcinoma cases, tryptophan did

not develop from the admixed glycytryptophan. Only in two achylia cases, on very prolonged standing, did the reaction appear in contents from non-cancerous patients. Therefore, when an untreated specimen is kept for forty-eight hours in a thermostat, there is no special danger that bacterial development of tryptophan will occur. Sometimes a faint reaction becomes more marked in forty-eight hours. The addition of preservatives is superfluous and inconvenient. Thymol fragments form a heavy, milky emulsion with stomach contents, which is intensified by the addition of bromin water. Toluol is better, but it likewise forms a turbid mixture with stomach contents, and, as I mentioned before, such turbidity interferes with sharp elicitation of the tryptophan color reaction with bromin water. Chloroform and ether are best in this respect, but they seem to interfere somewhat with the reaction in certain cases.

I disagree with Neubauer and Fischer in their view that blood serves as a source of error in the glycytryptophan test. The testing of contents for occult blood is superfluous. I do not wish to be placed in the position of taking issue with Neubauer and Fischer on the proposition that blood contains proteolytic enzymes. My contention is merely that blood in stomach contents, in a quantity insufficient to be betrayed by its color, is not potent enough to hydrolyze protein or glycytryptophan into detectable quantities of tryptophan. This conclusion is sustained by observations in several cases, in which occult blood was present in the contents, as proved by blood tests, and yet no tryptophan could be detected after application of the glycytryptophan test. More than that. I even added blood to stomach contents by getting blood from the patient's finger, but no tryptophan could be obtained in the mixture even after standing in a thermostat for days. This was done by me on two patients, whose cases were both anacid. I also added blood from myself and from a fellow worker in the laboratory to glycytryptophan, in quantities just sufficient to impart a slight bloody tinge to the solutions, but after six days' incubation in a thermostat none of the mixtures contained a trace of tryptophan. Of course, it is probable that if a large quantity of blood is added to gastric contents, tryptophan will be formed, but such contents are, in general, worthless in this connection for another reason, namely, that it is impossible to discern the characteristic tryptophan-bromin color in a red or dark-colored medium. Occult blood, therefore, cannot serve as a source of error in the tryptophan test.

Duodenal contents which have regurgitated into the stomach are likely, if sufficient in quantity, to vitiate the test, since the contained trypsin may convert proteins into amino-acids and thus produce tryptophan that might be ascribed to cancer enzyme. Unless bile is manifestly present in the gastric contents, however, there is little or no danger in this connection, assuming, of course, that bile and pancreatic fluid always appear together. Neubauer and Fischer aptly remarked that no chemical test need be made for bile in doubtful cases. It is sufficient, they believe, to examine the contents in gross and if bile is obviously present, as evidenced by greenish color of the contents, such a specimen should be discarded and a fresh one obtained. Occult bile could hardly be accompanied by sufficient trypsin to produce a detectable amount of tryptophan in the test.

Lyle and Kober seem to be impressed by the possible influence of the trypsin that may occur in stomach contents in this relation. From extended experience in stomach work I can say that duodenal material rarely

appears in stomach contents. Duodenal fluid may occasionally be present in very trivial amounts, but it cannot then vitiate the tryptophan test. Moreover, pepsin in the presence of acid destroys trypsin. Acid itself does so. To serve as a source of error in the tryptophan test, duodenal contents must be present in large quantities, and the stomach contents must be alkaline. These two conditions prevail only when there is an obstruction of the duodenum below the papilla and in certain pathologic cases following gastro-enterostomy, in which the drainage goes from the afferent loop into the stomach, instead of into the efferent loop. I have had several such cases; two of them are included in these experiments (Cases 14 and 15). But in cases like these the presence of duodenal contents may be determined without any difficulty.

After all is said, one fact stands out prominently, viz., that the glycytryptophan test yields positive results in practically all cancer cases and hardly ever in any others, as may be seen from the reported results of the experiments by Neubauer and Fischer, Lyle and Kober and myself.

THE AUTHOR'S TRYPTOPHAN TEST

The test, as I have modified it and now recommend it, is made as follows: Four or five hours after a regular dinner, some stomach contents are secured, filtered and tested with bromin water for tryptophan. If present, reaction is positive. If absent, some of the filtrate transferred to a stoppered bottle and treated with a little toluol, or better still, without a preservative, is put in the thermostat and tested again for tryptophan twenty-four to forty-eight hours later. Although the reaction very often develops at room temperature, the mixture should be kept in a thermostat for the period stated.

DEFICIENCIES OF THE TRYPTOPHAN TEST

The most serious defect of the tryptophan test is its inconstancy. The reaction may be present in one specimen of stomach contents and absent in another from the same patient. The only safeguard against this uncertainty is, in case of negative results, to test three or four specimens obtained at different times. If three or four tests yield negative results, the case is most likely non-cancerous. Work now in progress may ultimately indicate the reasons for the inconstancy referred to. (See addendum.)

Satisfactory results are unattainable unless the contents are practically colorless. Admixture of coloring matter may make it impossible to conduct the test. The presence, therefore, of blood or coffee-grounds in the contents makes it necessary to select another specimen for the test. In giving the patient a meal for the test, he should be instructed not to ingest any foodstuffs that are likely to impart color to the contents. Coffee, tomatoes, strawberries, etc., for obvious reasons, should be excluded. Tea must not be strong, else the contents will be sufficiently reddish to render the test useless. (See addendum.)

The fact that free hydrochloric acid interferes with the activity of the cancer enzyme or may destroy it altogether, is a serious obstacle in the way of reliable employment of the tryptophan test.

3. GENERAL CONCLUSIONS

A critical review of the results obtained in this study of the tryptophan test convinces me that it is a valuable sign in the diagnosis of cancer of the stomach. It is a

sign in itself. The other signs of cancer, such as absence of free hydrochloric acid and presence of lactic acid, occult blood, coffee-grounds, etc., have no value whatever, when taken individually, since they appear in conditions other than carcinoma. They are of value only in conjunction with other data. Moreover, none of these has any negative value. In these respects the tryptophan test is superior to any of them. True, it is inconstant, but are positive results from the Widal test, the finding of the tubercle bacilli, the finding of plasmodia, constant features? However, in matters of such importance many observations must be made before conclusive deductions can be drawn. I cheerfully recommend this simple tryptophan test to the profession for the further study and more complete determination of its real value.

Is it an *early* sign of cancer? I do not know! I have not been fortunate enough, as yet, to get a very early case and determine the matter, one way or the other. Much more work must be done in this connection before that important question can be answered.

I wish, in this connection, to express my indebtedness to Prof. William J. Gies of the College of Physicians and Surgeons, who has placed his laboratories at my disposal and has secured the support necessary for the conduct of this rather expensive research. With his ever-ready counsel and valuable suggestions he has contributed greatly to the success of my work. I also express my indebtedness to Prof. Francis Carter Wood of St. Luke's Hospital, Miss Selma Granat of the Presbyterian Hospital, Dr. Julius Rudisch of the Mount Sinai Hospital and Drs. A. Zemansky and W. Weinberger of the Lebanon Hospital for supplying stomach contents of some very interesting cases.

ADDENDUM

In an endeavor to perfect my methods further, while the manuscript of this paper was in the hands of the editor, I made observations warranting the following preliminary conclusions: Pepper interferes with the tryptophan-bromin reaction; so does lemon juice. Sugar is an excellent stimulant to the secretion of cancer enzyme; beef is much better than chicken. A good meal for the tryptophan test is one consisting of bread and butter, with meat prepared very plainly without extra seasoning or dressing, and some very sweet, weak tea. I made about a dozen tryptophan tests recently on each of two patients (Cases 16 and 17), and, using such meals, obtained uniformly positive results in almost every test.

I have secured excellent results by giving a meal consisting of white bread and very sweet weak tea without milk, the meal having been extracted in one hour. This statement is based, however, on tests on only two patients.

4. RECORD OF CASES

1. CASES WITH CONTENTS YIELDING A POSITIVE TRYPTOPHAN REACTION *

CASE 1.—M. G., male, aged 49. Free hydrochloric acid, 0; total acidity, 58. Lactic acid, present. Two tests were made for tryptophan; both were positive. Tryptophan was present in the gastric contents immediately after removal from the stomach. A test breakfast, after lavage of the stomach, failed to yield contents giving the tryptophan reaction even after standing several days in the thermostat. The patient

* Every test referred to in this record as a tryptophan test, unless otherwise indicated, was a double one—with glycytryptophan and without it. The results in each case were identical in quality unless otherwise indicated.

was operated on and proved to have an extensive carcinoma originating in the pylorus.

CASE 2.—I. S., male, aged 45. Clear-cut carcinoma. Coffee-grounds. Free hydrochloric acid, 0; total acidity, 136 to 166. Lactic acid, considerable. Immediately after removal of contents from the stomach a faint tryptophan reaction was directly obtained. After forty-eight hours in the thermostat, this reaction was more marked.

CASE 3.—S. D., male, aged 61. Clear-cut carcinoma involving the pylorus. Marked peristaltic movements. Free hydrochloric acid, 0; total acidity, 6. Lactic acid, considerable. Two tests were made for tryptophan; both were positive.

CASE 4.—G. E., male, aged 54. Cancer involving the pylorus. Three tryptophan tests were made, with two positive results and one negative. Free hydrochloric acid, 0 to 34; total acidity, 42 to 66. No lactic acid.

CASE 5.—G. E., male. Autopsy: cancer of the pylorus. Five tryptophan tests were made, two with stomach washings. Three Ewald test breakfasts were given. One Ewald tryptophan test was negative; the others were positive. In two tests the direct tryptophan reaction appeared after forty-eight hours' standing in a thermostat, but not before.

CASE 6.—N. T., female, aged 46. Palpable tumor. Patient died. Clear-cut carcinoma. No free hydrochloric acid in stomach contents. Two tryptophan tests were made with positive results. In one test the reaction was slight.

CASE 7.—S. F., male, aged 73. Cancer of the pylorus. Marked stasis of food. Free hydrochloric acid varied in quantity from a trace to 24; total acidity, 88. Lactic acid, present. Four tryptophan tests were made. Two were positive and two negative. The contents that gave the negative result contained free hydrochloric acid, 24.

CASE 8.—D. P., female. Cancer of the pylorus and posterior wall. Operation. A test for tryptophan was positive.

CASE 9.—S. N., male, aged 28. Carcinoma of the lesser curvature. Operation. Free hydrochloric acid, 0; total acidity, 6 to 14. Lactic acid, present. Two tryptophan tests were made; one was positive, one was negative.

CASE 10.—G. H., male, aged 51. Carcinoma ventriculi. Free hydrochloric acid, 0; total acidity, 10. Lactic acid, present. Palpable tumor. A tryptophan test was positive.

CASE 11.—S. D., male, aged 52. Carcinoma ventriculi. Marked peristaltic movements. Dilated stomach. Marked stasis. Refuses operation. Free hydrochloric acid, 26; total acidity, 92. Lactic acid, present. A specimen of stomach contents with the above acidities showed a marked direct tryptophan reaction. On two other occasions, with acidities of free hydrochloric acid, 50 to 72; combined, 24, and total, 108 to 130, direct tryptophan reactions were positive. One month prior to this, two tryptophan tests were negative.

CASE 12.—C. C., female. Suspected carcinoma. Two tryptophan tests; one positive, one negative.

CASE 13.—A. S., male, aged 36. Free hydrochloric acid, 32; total acidity, 76. This did not appear to be a cancer case. Unfortunately the patient could not be kept under observation. One tryptophan test was made with a positive result.

CASE 14.—A. T., female, aged 33. Material from the stomach contained much bile on repeated examinations. Free hydrochloric acid, 0; total acidity, 20. The patient underwent a gastro-enterostomy for pyloric ulcer two years ago. Non-cancerous case. Two tryptophan tests were made; both positive.

CASE 15.—S. G., male, aged 52. Jejunal ulcer. Gastro-enterostomy four years ago. Non-cancerous. Material from the stomach contained much bile on repeated examinations. Free hydrochloric acid, 0 to 28; total acidity, 24 to 68. One positive tryptophan test was made.

CASE 16.—R. K., male, aged 54. Case of suspected carcinoma. Free hydrochloric acid as high as 50; always present. About a dozen tryptophan tests were made and almost all were positive.

CASE 17.—I. C., male, aged 46. Clear-cut case of cancer. Palpable tumor. Cachexia. Coffee grounds. Very poor motility. Free hydrochloric acid, 0; total acidity, 14. Lactic acid, considerable. A dozen tests for tryptophan were made; all were positive.

CASE 18.—L. B., male, aged 65. Patient of Dr. Jerome M. Lynch. Clinical diagnosis by Dr. Lynch, carcinoma ventriculi. Operation by Dr. Lynch about 2½ years ago for cancer of the rectum. Free hydrochloric acid, 0; total acidity, 14. Lactic acid, trace. Starch digestion, good. Occult blood, present. One test for tryptophan was made with a positive result.

CASE 19.—Mrs. M., aged 54. Patient of Dr. William Weinberger. Undoubted case of carcinoma. Operation revealed a tumor in the pyloric region. Free hydrochloric acid, absent. Lactic acid, present. Two tests were made for tryptophan by Dr. Weinberger. The first was negative; the second, positive.

II. CASES WITHOUT FREE HYDROCHLORIC ACID IN THE STOMACH CONTENTS AND NOT YIELDING POSITIVE TRYPTOPHAN REACTION

CASE 20.—S. L., male. Suspected carcinoma. Free hydrochloric acid, 0; total acidity, 48. Lactic acid, negative. One test was made for tryptophan, but with a negative result.

CASE 21.—J. O'H., male, aged 41. Chronic gastritis. Free hydrochloric acid, 0; total acidity, 44-76. Lactic acid, 0. Two tryptophan tests were made; both were negative.

CASE 22.—A. C., female, aged 38. Suspected carcinoma. Free hydrochloric acid, 10; total acidity, 34. Lactic acid, 0. Blood in contents. Two tests were made for tryptophan; both were negative.

CASE 23.—C. R., female. Chronic gastritis. Free hydrochloric acid, 0; total acidity, 14. Lactic acid, 0. Several tryptophan tests were made; all were negative.

CASE 24.—A. N., female, aged 55. Achylia gastrica. The patient has been under my observation for the past nine years. Several examinations were made for tryptophan; all were negative. Free hydrochloric acid, 0; total acidity, 6. Lactic acid, 0.

CASE 25.—A. N., male. Achylia gastrica. Free hydrochloric acid, 0; total acidity, 8. Lactic acid, 0. One tryptophan test was made with a negative result.

CASE 26.—R. H., aged 52. Spasmodic stricture of the upper part of the esophagus. Free hydrochloric acid, trace; total acidity, 36. Several tryptophan tests were made, but all were negative.

CASE 27.—I. D., male. Chronic gastritis (alcoholic). Free hydrochloric acid, 0; total acidity, 14. Lactic acid, 0. One tryptophan test was made with a negative result.

CASE 28.—N. F., male. Suspected carcinoma. Free hydrochloric acid, 0; total acidity, 16. Lactic acid, 0. One tryptophan test was made with a negative outcome.

CASE 29.—R. McM., female, aged 42. Chronic gastritis. Free hydrochloric acid, 0; total acidity, 38. Lactic acid, 0. Three tests were made for tryptophan; all were negative.

CASE 30.—A. M. K., aged 36. Gastroparesis, hypoaecidity. Free hydrochloric acid, trace; total acidity, 24. Lactic acid, 0. Two tryptophan tests were made; both were negative.

CASE 31.—O. D., female. Diagnosis; achylia gastrica. Free hydrochloric acid, 0; total acidity, 4.

CASE 32.—E. T., female. Chronic gastritis. Free hydrochloric acid, 0; total acidity, 40.

CASE 33.—B. J., male. Chronic gastritis. Free hydrochloric acid, 0; total acidity, 25.

CASE 34.—D. F., female. Diagnosis, achylia gastrica. Free hydrochloric acid, 0; total acidity, 6.

CASE 35.—B. S., male. Chronic gastritis. Free hydrochloric acid, 0; total acidity, 20.

CASE 36.—D. P., female. Chronic gastritis. Free hydrochloric acid, 0; total acidity, 32.

CASE 37.—L. L., male. Chronic gastritis. Free hydrochloric acid, 0; total acidity, 16. Lactic acid, 0.

CASE 38.—M. B., female. Achylia gastrica. Free hydrochloric acid, 0; total acidity, 8.

III. SPECIAL CASE, YIELDING TRYPTOPHAN REACTION WITH GLYCYLTRYPTOPHAN, BUT NONE WITHOUT IT

CASE 39.—B. C., male. Chronic gastritis and hyperacidity, very marked tryptophan reaction with glycyltryptophan; none without it.

† At least one test with glycyltryptophan and one without it was made in each of Cases 31-38, with uniformly negative results.

IV. CASES. NOT YIELDING TRYPTOPHAN REACTION

None of the cases in this group gave the tryptophan reaction. The tryptophan test was repeated several times in many cases. The gastric contents from all these cases had free hydrochloric acid.

Six cases of hyperacidity.

Three cases of chronic gastric ulcer.

Five cases of neurasthenia.

One case of contraction of gastro-enterostomic orifice four years after operation. Marked stasis of food. Dilated stomach.

One case of arteriosclerosis.

One case of hypernephroma. Patient died.

Three cases of gastric atony, with marked stasis of food.

Two cases of gastropnoia.

One case of enlarged gall-bladder, probably due to calculi.

One case of chronic constipation.

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A STUDY OF THE BACTERIAL FLORA OF
THE NASAL MUCOSA IN THE
PRESENCE OF RHINITIS*

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This study represents an effort, extending over about two years, to learn something of the bacterial flora of the upper respiratory tract in the presence of disease. The purpose was to ascertain, first, whether the flora in our territory are comparable to regions where such investigations have been made, namely, in various parts of England and in Germany; secondly, to uncover, if possible, the etiologic factors in infections of the mucosa of this tract. Most of these infections are more serious in their final results than they are usually considered. They may not only be the precursors of diseased adnexa, of cervical adenitis, often of meningitis, but, by the absorption of formed toxins, they are worthy of consideration for the part played in hemic and vascular disorders leading to arterial hypertension and its sequelae.

These are, fundamentally, infections which are peculiar to the mucous surfaces and, of course, must vary according to the environment, habits and social status of the infected subjects.

Only infections of the nasal mucosa are reported here. Detailed reports on specific bacteria will cover the other regions.

CHARACTER OF THE RESEARCH

In this study endogenous diseases are not considered, only ectogenous bacterial invasion. The whole study includes examinations of about 250 cases of diseases of the upper respiratory tract, including a number of ear infections which presuppose postnasal infection, a considerable number of tracheal infections and a limited number from the polybacterial pharynx. Out of this research are taken 100 cases of nasal infection, listed in order of record, and these include a few cases of pernasal secretion from sinusitis.¹

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. I must acknowledge my great obligation to the following individuals: Aaron Arkin, who carried through the cultures of the first series of sixty-four cases in the bacterial laboratory of the University of Chicago through the courtesy of Professor Jordan; Dr. Mary C. Lincoln, who carried through the second series of fifty cases and has critically examined the whole list; and my assistant, Miss Copeland, who with me has worked out the third series of 136 cases. I am also indebted to men in the laboratory of Wright and confirmation of my findings in the probably most frequent causal factor—the *Bacillus segmentosus* of Cautley—and for courtesies extended by them. Without the cooperation of all these people it would not have been possible to carry out so thoroughly such a number of examinations in the time of the research.

The whole series represents a greater number of diseases than of individuals, and this discrepancy between diseases and persons infected is due to a fact to which I shall later call attention more specifically, namely, the fact that it is not unusual to find coincident infection on different areas of the upper respiratory tract caused by distinct bacteria on the respective areas involved. The fact that bacteria grow with varying degrees of rapidity and virulence is, of course, well known, but it becomes a matter of importance, (from the therapeutic side), to appreciate the possibility of this contemporaneous infection of different regions.

This locally variable susceptibility is probably due to three conditions: (1) the variation in culture media offered by the locality; (2) the variation in virulence in the respective regions, depending, doubtless, on specific local resistance to invasion; (3) the lowering of bacteriostatic pressure in reflexly related regions through stasis, the evolution of disease in one locality producing the lowered resistance in a region closely associated with it. As to regional variation, we know the proclivity for multiplication of the gonococcus on the mucosa of the urethra and of the conjunctiva, but it is rarely found growing on the upper respiratory tract. On the other hand, the pneumococcus has an adaptive habit which enables it to grow fairly well on the conjunctiva, well in the nose, ear and pharynx, and luxuriantly on the pulmonary mucosa, and even on the bloodstream itself; but it is not equally virulent in all sites *in vivo*, and is most selective as to its growth *in vitro*. So, as will be seen from the findings, the bacteria vary greatly in their selection of surface on which to grow.

METHODS OF THE RESEARCH

Film preparations were made from the secretions taken by platinum loop, if plentiful, or by sterile swabs, if scant, and fixed in flame. For cultures a platinum loop sterilized in flame was introduced directly on the area involved in the inflammatory reaction. This method was used for all inoculations and, acting on the advice of the English workers in this field, they were made on Loeffler's blood-serum mixture which, as will be seen later, is probably not altogether reliable in fulfilling the possibilities of development for many of the organisms. They were all stained by Gram's method. In the presence of diverse colonies, subcultures were made and, from pure cultures obtained, cultural tests were carried out.

The method of obtaining materials differs from that employed by some of the English and German investigators and is more reliable, since some of them have depended on secretion blown from the nostrils, which is almost certain to be contaminated by the ever-present cocci in the skin and hairs of the interior nares, and unless special care is taken, mixes the secretions from the two nares. If the secretion is abundant, it is, of course, possible to wash the larger masses thoroughly and to obtain from them uncontaminated material, but in the beginning of acute infections, when there is only watery secretion, it is difficult to get such masses.

The method of blowing the material from both nostrils would be inaccurate in many cases, for there is abundant evidence that the two sides of the noses may vary as to their bacterial content, particularly in early stages of infection. It is even possible to have acute rhinitis on both sides caused by distinct organisms. In one case there was an acute febrile attack starting on the left side of the throat, passing to the left nostril and

TABLE 1.—SHOWING FINDINGS IN 100 CASES OF RHINITIS

[illegible]

147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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into the left frontal and, possibly, anterior ethmoidal cells, with the coincident development of frontal sinusitis on the right side, but with a different organism present. In this instance, it seemed that the bacterial infection on the left side did not pass to the right side at all, but so lowered the resistance through reflex vascular stasis that a latent infection became manifest on the right side. I judge this from the accidental fact that we had made a culture from the right frontal sinus a few weeks previously, which was also predominant in this finding. In this case our technic proved valuable and the evidence was incontrovertible, presenting the interesting feature of a patient suffering constitutional symptoms from pneumococcus infection on the left side and the local pressure symptoms from a staphylococcus on the right side. Instances might be multiplied, showing the fallibility of diagnosing the infection from specimens from areas other than those involved in inflammatory reaction, and justifying the technic employed. Coincident infection of the trachea by *Micrococcus catarrhalis* with rhinopharyngeal infection showing Cautley's bacillus, has been observed several times.

TABULATION OF FINDINGS

Table 1 represents the 100 cases of nasal infection. The acute on chronic and acute on subacute are considered as acute infections, but they will also show among the subacute and chronic cases of rhinitis though counted but once. The number of acute cases are therefore sixty-four. There are thirty-four subacute and eleven chronic; five cases of acute sinusitis and nine cases of chronic sinusitis.

This table presents some interesting and instructive features. The number of cases and specimens examined is greater than the combined reports of the English observers, and differs in results from some and, in percentages, from all. Many bacteria are present accidentally and not in a casual way.

In Table 2 the bacteria are arranged by groups taken in the order of percentage of finding.

The Staphylococcus Group

The three varieties of staphylococcus, *S. albus*, *S. citreus* and *S. aureus*, are listed separately, making a total of fifty-six cases, indicating a presence of these pus cocci in 56 per cent. of all cases of infection studied; other cocci added bring the total to 73 per cent. Lewis and Turner² made a study of twenty-six specimens from normal noses, disclosing pus cocci in 50 per cent.; but the most notable extended studies are those by Hesslauer³ covering 186 specimens from the normal in which staphylococci are present in 25 per cent., and by Neumann⁴ covering 206 cases, which showed the presence of *S. albus* in 98 per cent., *S. aureus* in 30 per cent. and *S. citreus* in 12 per cent.

Our percentage of staphylococci in infected cases is probably relatively very high. In some of these cases they seem to be the only organism present. The evidence of German and English observers is, however, against the probability of primary infection by them; they are almost universally considered as secondary invaders. Workers in the field of the conjunctiva have found it very difficult to grow staphylococci on the conjunctiva, while as to the study of staphylococcus infection in otitis there seems to be a great lack of agree-

2. Edinburgh Med. Jour., November, 1905, p. 393.
3. Centralbl. f. Bakt. Orig., 1903, xxxiii, 47.
4. Ztschr. f. Hyg., 1902, xl, 33.

ment, such men as Pes and Gradenigo⁸ maintaining that they are always secondary invaders, while Zaufal and Roskin⁹ feel that they may replace the primary exciting bacteria and a few assert that primary infection by staphylococci is possible.

It would seem that time must be allowed for the better differentiation of this group. While in some of these cases they seem to be the only possible causal organism, such a case as 74, pneumococcus infection, might easily have been laid at the door of staphylococcus, since staphylococci were present on the first day of the attack, no pneumococci being recovered from the secretion. At the end of a week, during which time the boy was not seen and had been very ill with typical pneumonia rhinitis, the smears and cultures showed pure culture of pneumococci. A few days later, staphylococci again appeared in the secretions and the pneumococcus disappeared.

Several cases showing pure culture of staphylococci in very red pharynges, and a few ear cases, in which the staphylococci were the only demonstrable agents in the attack, have been observed. It is only lately that we have been testing the liquefying reaction of the staphylococci and, in all cases observed in this regard, we have

the cases in which they are present alone, that is, twenty-four times. Probably in these cases they are secondary to irritation other than bacterial, and possibly many would prove like Case 74, should repeated examinations be made. We are not considering the frequently occurring furuncles in the nasal vestibule. These are indisputably due to staphylococci and usually—possibly always—the aurens.

The Diphtheria Group—*Bacillus Segmentosus* of Cautley

The second in percentage order of occurrence 35 per cent., the *Bacillus segmentosus*, is worthy of special consideration, but time is not available for it. A detailed description of this interesting organism will follow.

Though discovered by Cautley,⁸ working under the local government board of London, in 1893, and investigated since by Gordon,⁹ by Prosser-White,¹⁰ by Benham¹¹ and by Allen,¹² and commonly known in England under the name of *Bacillus septus*, it is almost unknown in our literature. I had noted its presence for several years and had it reported by laboratories as “diphtheroids,” “Gram-positive diplococci,” etc., but

TABLE 2.—ETIOLOGIC SUMMARY *

Classes of Organisms.	Variety.	Per Cent.	Acute. Probably Alone Causal. Per Cent.	Acute. Probably Causal, But Not Alone. Per Cent.	Acute. Total Probably Causal. Per Cent.	Acute. Possibly Causal. Per Cent.	Chronic. Probably Alone Causal. Per Cent.	
Pyogenic cocci:—								
	Staphylococci	56						
	Giant micrococci Gram-positive.....	12						
	Streptococci	5						
		—	73	0	..	0	24	0
Diphtheroids:—								
	Segmentosus	35						
	Unclassified	5						
	Yellow bac.†	4						
	Brown bac.†	1						
	Salmon bac.†	1						
		—	46	22	19	41	0	0
Micrococcus catarrhalis		20	7	13	20	0	0	
B. mucosus capsulatus (Friedlander).....		7	0	0	0	2	5	
Pneumococcus (Fraenkel)		7	7	0	..	0	0	
No growth		4	0	0	..	0	0	
Diplococci—unclassified Gram-positive and Gram-negative.....		6	0	0	..	3	..	
Pyocyanus		3	0	0	..	1	2	
Influenza "Beta"		2	1	1	2	0	0	
Gram-positive streptobacilli		3	0	0	..	0	0	
Miscellaneous organisms		10	0	0	..	0	0	

* Based on conclusions of literature and my own clinical and bacteriologic observations.
† Named from color of growth on blood-serum; classified by morphology.

found the liquefiers to be associated with the more acute inflammatory reaction. This is in accord with the final conclusions of Axenfeld⁷ and others who have studied this group, namely, that the liquefying staphylococci are the virulent ones and that most of the others are harmless.

If staphylococci invade the mucosa in a secondary way, it would seem that they do so because the primary infectors produce local injury to the mucosa, in like manner that staphylococci invade the skin following local irritation and lowering of resistance. In that event it is pertinent to inquire why they may not cause rhinitis, if present on the mucosa when it is injured by foreign matter, or by chemical or thermal irritation. If that they are mostly of secondary occurrence they may be secondary to other irritants when they could not be said to occur in themselves. Such a case would be atypical clinically. Such the case.

However, of this great preponderance of primary invasion, we can not conclude factors in starting the inflammation. I call them “possibly causal” in

could not identify it positively; I failed to ascertain anything of it from bacteriologists in this country and did not appreciate what I had, until Allen described it in 1908. On a visit to London last year I submitted my slides to Allen and to men in the Wright and Douglas laboratory, who confirmed the finding. So what I here report is known through England as the *Bacillus septus* (Cautley’s bacillus).

It is a diphtheroid, Gram-positive bacillus, club-shaped, with rounded ends 0.2 or 0.3 by 0.5 microns. Its chief morphologic characteristic is the segmentation or barring due to an unstained septum, which caused Cautley to give it the name of *Bacillus coryzae segmentosus*—coryza because he thought it to be the cause of the coryza of epidemic influenza.

Prosser-White found it in all of seven cases, Benham in twenty-five of twenty-seven and Allen in eleven of forty-two cases of acute rhinitis. It was not alone in these cases, but apparently predominant and was thought causal. My percentage is not so high as Cautley’s, Prosser-White’s or Benham’s, but it is higher than Allen’s, and this, as will be brought out in a later specific report

8. London Local Govt. Rep., 1894-95.
9. London Local Govt. Rep., 1901-02.
10. London Local Soc. Rep.
11. Brit. Med. Jour., May 6, 1906, p. 1023.
12. Lancet, London, November, 1908, p. 1591.

on the organism, may be accounted for by the fact that all but Allen's studies were taken from epidemic periods. Allen's was part of a research covering four years, and mine, a greater number of cases than all of the others combined, also covered a longer period and may thus be inclusive of epidemics. Attention is also called to the fact that Benham's 90 per cent. occurred in the months of November and December and in mine, if the occurrence in autumn months were taken out, a high percentage would be obtained, that is, in epidemic form. It is also interesting to note that, during the past two months (spring), we have not obtained from any of the many cultures in acute rhinitis a single specimen of *B. segmentosus*, though we have tried every case for it in hopes of showing a fresh culture for inspection. It seems from these facts that possibly this bacillus is epidemic in the autumn months.

The addition to this list of twenty-five or thirty new cases, worked out since this report was closed, would alter the percentages, adding materially to the next-mentioned organism, *Micrococcus catarrhalis*, fifteen or twenty, and to a new tiny diplococcus, Gram-negative and so far unclassified, eight or ten cases, thus reducing the preponderance of *B. segmentosus*.

The evidence is much in favor of the *Bacillus segmentosus* as a primarily etiologic organism in rhinitis. As to its being a distinct bacteriologic organism, however, there is some doubt, since its margin of differentiation¹³ from the *Bacillus xerosis* and the *Bacillus septatus* of Gelpke,¹⁴ both of which are innocuous to the conjunctiva, is small and both may be identical therewith. From secretions it is a slow grower, sometimes appearing only after three days; it does not liquefy gelatin and it grows in discrete colonies with serrated edges. In subcultures it grows more rapidly and coalesces.

Clinically it is quite characteristic, starting nearly always in the throat after a few hours' incubation, and passing to the nose. It has been recovered five times from the ear in twenty-six cases of acute otitis; it was found in one case of sinusitis and has persisted for over a year with *Mucosus capsulatus*—seventeen cases examined—and was obtained three times from cough cultures; so that it may be said to have a strong predilection for the nasal mucosa, where it develops an acute reaction, typical rhinitis, with little or no tendency to chronicity. Counting out the cocci and other organisms known not to be causal in coryza, it may be said to be the only causal organism present in 19 per cent. of cases examined, occurring also eleven times with *Micrococcus catarrhalis* and five times with other possible causal bacteria.

The other diphtheroids are few numerically, but some of them are severe in their manifestations; one, Case 78, not reported in this list, in which was found the yellow bacillus like that in Cases 79, 92, 100 and 104, all severe, produced the most nearly fatal rhinitis and otitis I have seen, with temperature range from 106 to 96. This case I intend to report specifically.

Micrococcus Catarrhalis

This Gram-negative coccus is misnamed, because it is wrong to convey such an impression of mild and benign character as is given by such a name. In some ways it seems the most dangerously infectious of all the bacteria, because of its prevalence, its capacity for wide-spread growth on the mucosa, its recently proved ability to cause

meningitis, its clearly infectious character and the frequently caused painless otitis media caused by it.

It is noted in 20 per cent. of rhinitis and may be considered as alone causal in 8 per cent. Noted epidemiologically since the closing of this report, that is, in the months of April and May just passed, this percentage would be about 60 and the addition of these last cases to our list of 100 would increase its presence alone from 8 per cent. to 18 per cent. In the whole research its presence is noted in thirteen cases of throat and trachea and seven cases of suppurative otitis. In symbiosis with the *Bacillus segmentosus* there seems to be an exaltation of virulence.

When found in otitis media suppurativa in pure culture it has produced less pain and has undergone resolution following paracentesis more quickly than any other infection that has come to my notice. In the ear it is quite likely to abort.

There is not much in the literature on the subject of this organism. We have been able to differentiate several strains of quite characteristic action and reaction, but into that I am not prepared to enter at this time. Attention may be called in passing to its morphologic and, in some strains, culture similarity to the meningococcus on one side and the gonococcus on the other.

I believe that there has been an epidemic of *Micrococcus catarrhalis* infection in Chicago this winter and spring. In the winter epidemic and in tracheal infection generally it seems most persistent, but in this spring's epidemic (not reported here) it has been mild and self-limited. Some of the series we have encountered since this report culture differently and may prove to be another organism of the same group.

Lastly, attention is again called to its recovery post mortem from an increasing number of cases of meningitis and to the fact that its proneness to cause slight subjective disturbance may account for many an obscure case of meningitis of nasal or aural genesis.

Bacillus Mucosus Capsulatus (Friedlander's *Pneumobacillus*)

It has been a matter of surprise to note almost complete absence of this organism in acute infections, because I was prejudiced in favor of its finding in the beginning of the study. None of the observers whom I have quoted, however, with the exception of Allen, have found it in the epidemic investigated. If I had not spent some time in Allen's laboratory and become familiar with his method of working, and if I did not know his thoroughness as a bacteriologist, I would doubt the possibility of its causing acute rhinitis, since we have found it present so rarely and then, with two possible exceptions, confined to chronic cases. Allen reports Friedlander in thirteen of his forty-two cases, but by his table it may be considered as alone causal of acute rhinitis only in six cases, or 14 per cent., as against Von Besser's¹⁵ 2.5 per cent. and Lewis and Turner² 4 per cent. for normal noses.

Attention is called to the fact that authorities have come to consider the *ozena bacillus*¹⁶ of Lowenberg and Abel¹⁷ as identical¹⁸ with the *pneumobacillus* of Friedlander, since they are alike morphologically, in staining reaction, and in nearly all of their cultural peculiarities as well as their pathogenicity for animals. In four of my cases the diagnosis of *ozena* would properly be made;

13. Axenfeld-MacNab: Bacteriology of the Eye, p. 29.

14. Arch. f. Ophth. (Graef's), 1896, xlii, 97.

15. Beitr. z. path. Anat. u. z. allg. path., 1889, vi, 33.

16. Jordan: General Bacteriology, p. 252.

17. Wassermann-Rolle's Handbuch, 1903, iii, 870.

18. Axenfeld-MacNab: Bacteriology of the Eye, p. 242.

two of them were seen by other men and were so diagnosed. I reported it as possibly causal in two acute cases.

Pneumococcus—Fraenkel

None of the articles quoted in this report mention the finding of the pneumococcus in acute rhinitis, which seems rather remarkable, particularly for Allen's research, which covered four years and would, one would imagine, report some findings. Hesslauer³ gives the enormous percentage of 49.7 and R. O. Neumann⁴ 22 per cent. for abnormal noses, but neither states what sort of cases he reports. It is certainly a very frequent cause of acute infection in this climate. Pneumococcus infection in the eye is quite common and it acts like my reported Case 137, in that as soon as the pneumococcus disappears the staphylococci become more obvious, appearing in large numbers.

Patients with this infection are severely ill. These cases constitute many of those which are diagnosed as grip. Especially is it noteworthy, though I have not seen it mentioned anywhere, that these infections frequently terminate by crisis. I believe that Axenfeld noted it in relation to pneumococcus eye infections, but the reference is mislaid.

Several instances have been observed in which typical pneumonia temperature range was exhibited without, so far as could be ascertained, any pulmonary involvement. This is an intensely interesting observation and is recommended for consideration.

Attention is also called to the fact that, in all cases in which pneumococcus is present, it is in pure culture, barring a notation I have already made, that staphylococci precede and follow its activity. These observations have raised many interesting points that may not be entered into at this time.

Bacillus Pyocyaneus

I have seen no mention of pyocyaneus in relation to nasal infection. It must be very rare, and English confrères with whom I talked are of the opinion that it probably grows in structures deeper than the mucous membrane.

Morax-Axenfeld and Koch-Weeks Bacilli

Morax-Axenfeld and Koch-Weeks bacilli have been very commonly observed by others, but I have seen them only the three times mentioned.

Influenza "Beta" Bacillus

The influenza "beta" bacillus presents many points of interest. I call it influenza "beta" because it is not the influenza bacillus, but belongs to this group. It should have more extended study.

The other organisms are probably of accidental occurrence and not worthy of note.

Influenza Bacillus—Possibility of Failure

It is especially interesting to call attention to the fact that in 250 cases examined the influenza bacillus has not been encountered once, nor was it noted by any of the English observers whose reports go back several years, except in an epidemic on the Riviera, in which the pneumococcus is reported as causal with *B. influenzae*, *M. catarrhalis* and *paratetrigenus*. This is surprising in view of the fact that diagnosis of grip colds have been made daily from clinical manifestations by physicians and specialists all over the country these years.

I report in this series four specimens in which no growth occurred and from whose smears no diagnosis could be made. This reveals the fact of the possibility of error in this research to which I previously called attention, namely, the fact that all cultures were made on Loeffler's blood-serum mixture.

It is pretty generally understood among experts on the subject that the influenza organism grows poorly on blood-serum unless some hemoglobin be present and, although there have been no cases which could clinically be adjudged influenza, it is possible that, had we used hemoglobin containing media for the influenza group (so-called hemophile pole bacteria) which grow with certainty only on them, we should be more certain as to the occurrence of influenza.

In like manner errors may have occurred with relation to the pneumococcus, although it is much more easily recovered from smears, had we used some such formula as that of Wertheim, on which organisms such as gonococcus and pneumococcus and Koch-Weeks bacillus grow best. It is also possible that better results might be obtained for the *Micrococcus catarrhalis* with the so-called nasgar mixture recommended by Wasserman.

These various media we may employ for future research.

No such objection may by any possibility obtain as to the limited finding of pneumobacillus of Friedlander, for on blood-serum it will outgrow any organism known to us, colonies growing to the size of a silver quarter while the *B. segmentosus* is grown to pin-point.

CONCLUSIONS FROM THE RESEARCH

The evidence seems indicative that the diphtheroids, particularly *Bacillus segmentosus* of Cautley, are concerned in the production of so-called common cold in its typical manifestation in the nose, and there is much evidence that it occurs in epidemic form.

The *Micrococcus catarrhalis* is much more general in its manifestation, and is, probably, also epidemic and productive of a rather more severe inflammation, though mild epidemics occur.

It seems likely that the symbiosis of these two organisms increases the virulence.

The pneumobacillus of Friedlander is much more concerned in chronic conditions and is probably identical with the *ozena bacillus*.

The pneumococcus of Fränkel flourishes in any part of the upper respiratory tract and, when virulent, has been found in pure culture.

Clinically the segmentosus infection is most likely to be in the nose, seldom in the trachea, but may cause otitis media; *Micrococcus catarrhalis* is most apt of all to invade the larynx and trachea, but may occur in the ear or nose and with variable virulence. The pneumobacillus is mostly confined to the nose and sinuses.

Influenza is conspicuous by its absence.

Pyogenic cocci are non-pathogenic locally, except as secondary invaders, and the probability is that only a limited number of strains are concerned in causation of acute infections on the mucosa, and these are not genuine coryza.

The bacterial flora of the nose in America probably does not differ materially from that of other countries, but must of necessity be governed largely by environment, occupation, social position and epidemics as to the ratios of finding.

ABSTRACT OF DISCUSSION

Dr. E. R. LEWIS, Dubuque, Iowa: In considering the pathologic conditions of the nasal and accessory nasal tissues, it must be remembered that a majority are due directly to infections, and of the remainder a large number are due indirectly to preexistent or coexistent infections. The subject of Dr. Walter's paper is, therefore, of practical interest to all who have to deal with these conditions. Inasmuch as there are involved two widely differing antagonists, the invading organism and the invaded tissues, analysis must proceed from two widely differing standpoints, that of the bacteriologist and that of the clinician. Observations which are to form the basis for deductions as to the bacteriologic or the clinical side of the matter must be made by experts and the bacteriologic expert should not dwell in the body of the clinician, and vice versa.

Among the deductions, certainties may or may not present; uncertainties are bound to. Undue emphasis should be spared the former and accorded the latter.

The fundamental reasons underlying the immunity of certain tissues and the susceptibility of other tissues apparently similar, in the same individual, to the same infection, may not be forthcoming. For instance, a gonococcus, bathing in mucous emulsion the newly born head, harms not the oral mucosa, or the nasal mucosa, but does attack the ocular mucosa. Yet that same oral mucosa, scatheless from its encounter with the gonococcus, falls easy prey to the lepto-*thrix* or *saccharomyces* infections, which in turn do not attack the conjunctivæ; the same nasal mucosa offers but weak resistance to pneumobacillus or streptococcus. Why? The Morax-Axenfeld bacillus conjunctivitis proceeds uninterrupted in the presence of bichlorid of mercury or silver salts but succumbs to zinc sulphate, whereas the more virulent gonococcus conjunctivitis subsides under the influence of silver salts but is not affected by zinc sulphate. Why? Questions like these must remain unanswered until careful investigations, patiently pursued and zealously guarded against error, shall have built up little by little a knowledge of the subject founded on truths proved by oft-repeated observations. I wish to express the appreciation which I am sure we all feel in regard to Dr. Walter's patience and energy.

I want to voice a suggestion concerning nomenclature which may be of some practical value. In speaking of the pharyngitis, tonsillitis, or rhinitis due to the *Bacillus diphtheria*, we are wont to use the terms nasal diphtheria, diphtheritic tonsillitis or diphtheritic pharyngitis. In speaking of other forms of pharyngitis, tonsillitis or other inflammation specified according to site, of known etiology, should we adopt the custom of using etiologic terms, it seems to me we should have made a step in advance, albeit a small one.

Dr. W. S. ANDERSON, Detroit: Why do infections of the mucous membrane of the lower respiratory tract occur? We all have patients who very seldom have an acute cold, and we have other patients who repeatedly have acute colds. We know that the lower animals are comparatively free from these infections. Why? What is there in the normal mucous membrane of some persons that resists infection while that of others does not? As I understand it, the normal respiratory tract is sterile, or nearly so. In the nose there are always a few micro-organisms but they do not thrive on a healthy mucous membrane. Going downward we find fewer and fewer germs until the tract below the vocal cords is always sterile in a healthy subject. But, in the presence of an acute cold there will be an abundant growth of organisms along the whole respiratory tract. Why? I have done some work in animals and it is easy to show that the lower respiratory tract is sterile but in many conditions it becomes infected. The mere closing up of the nose of a dog will be followed by a copious growth in the lower respiratory tract. Now we are coming to believe that many of the infectious diseases gain entrance through the mucous membrane of the respiratory tract, meningitis, diphtheria and so forth. In many of these there are local lesions of the mucous membrane, and yet if you attempt to reproduce these lesions in the lower animals you will fail. I have tried over and over again with the Klebs-Loeffler bacillus and have always failed,

and yet if we inject the organisms into the blood of the animals, they will die immediately or in twenty-four to forty-eight hours. The same thing occurs with the organism of pneumonia. If you rub it on the mucous membrane of the respiratory tract you will get no results at all. Why is the membrane in some cases so resistant? If we could learn what the local condition of the respiratory tract is that favors infection it would explain a great many conditions.

Dr. WILL WALTER, Chicago: Infection of the normal mucosa was not investigated but I reported the investigations of others who compare the normal with the abnormal. As to resistance to infection, of course there is the local resistance and the general immunity to be considered. There is also a variation in virulence of infectors and doubtless a specific local resistance. These are the problems which the laboratories of the world are trying to solve and which may not be answered offhand. In obstructed noses we have from mechanical causes practically a stasis and hence lowered local resistance. The opsonic index may be as high as 2 or 2.50 and still you get infection because of this stasis and the consequent poor local resistance. If the nose is shut off from its function by such abnormalities or by being held closed infection naturally occurs lower in the tract. Protection against such infection is one of the reasons for the existence of the nose.

A CLINICAL STUDY OF A CASE OF PSEUDO-
LEUKEMIC ANEMIA OF INFANCY

(VON JAKSCH) *

THEODORE J. ELTERICH, M.D.

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In 1889, von Jaksch proposed the term "anemia pseudoleukemica infantum" to designate a pathologic picture characterized by oligocythemia, oligochromemia, considerable permanent leukocytosis, enlarged spleen, slightly enlarged liver, and, sometimes also, enlarged lymph-nodes. Its identity as a distinct disease has been seriously questioned by some authorities on diseases of the blood. Notwithstanding, however, we find in a certain number of infants suffering from a severe form of rachitis or hereditary syphilis, a symptom-complex which is entirely apart from the pre-existing disease.

A number of German authors, Japha, Fischl and Geissler and also some Italians include the grave infantile anemias in the secondary anemias with a toxic basis, practically as a middle condition between anemia and leukemia. Japha does not regard the spleen as the primary focus, and is of the opinion that it has nothing to do with the regeneration of the blood; this is based on the fact that the enlargement frequently becomes reduced before the blood-picture has become normal, while the extent of the enlargement does not correspond to the gravity of the anemia. Japha also believes that deficient new formation of blood constitutes the nature of the affection. At the same time, there may be an exaggerated destruction; but there are only a few cases in which the anemic (granular) degeneration of the red corpuscles is found as a positive evidence of blood poison.

A very notable work on this subject by Banti appeared in 1883. He believed that anemia splenica was a primary disease of the spleen, but he also considered it a splenic form of leukemia. In the case studied and described by him, there were marked fibrous changes in

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

the trabeculae and the follicles of the spleen; and a great diminution of the cells. There were many phagocytic cells containing red corpuscles; the bone-marrow was red and showed a lymphoid condition, but the lymph-nodes were enlarged. The spleen weighed 2 pounds, 7 ounces; the liver weighed 2 pounds, 12½ ounces. The blood showed a diminution of leukocytes and the red corpuscles were between 2,000,000 and 3,000,000 per cubic millimeter. Koplik reports nine cases in which the blood-picture was as follows:

The hemoglobin ranged from 28 to 65 per cent.; the count of red blood-cells or erythrocytes fell as low as 1,400,000 and in others was as high as 4,448,000; and the leukocytes ranged from 5,200 to 40,000 and 80,000 to the cubic millimeter. In all cases there were nucleated red blood-cells, normoblasts and megaloblasts from 7 to 15 per cent. In some cases the white cells varied from 10,000 to 80,000 to the cubic millimeter in a given case, with erythrocyte count of 2,699,999 to 3,799,999.

He regards von Jaksch's anemia as a severe secondary anemia with or without marked leukocytosis.

Monti and Berggruen report 20 cases. In six of these the red cells were below 1,600,000. Four cases proved fatal; one recovered in which the proportion of leukocytes to the red cells had been 1 to 12.

History.—The case which I observed was that of a male child aged 13 months, admitted to the children's ward of the Allegheny General Hospital, Pittsburg, Aug. 4, 1909. The father and mother are both of German parentage and are apparently in good health. There is no history of tuberculosis or syphilis. The patient was one of twins; the other died at the age of 2 months from diarrheal affection. The patient had always been a weak and delicate baby. He was breast-fed for a few weeks only, and then fed on various foods, principally condensed milk. He had always been pale and cries a great deal. He had never been known to smile.

Examination.—The child was very poorly nourished and anemic. His expression was often anxious; but, as a rule he seemed apathetic. The skin was dry and flabby. Numerous purpuric spots were seen in various parts of the body, particularly in the legs and over the right iliac region. There was considerable enlargement of the lymphatic glands in the cervical, axillary, and inguinal regions. The abdomen was distended. The anterior fontanel was open and about the size of a twenty-five cent piece. The child had but six teeth. The epiphyses of the forearms were enlarged. Rachitic rosary, well marked. Examination of the chest revealed a subacute bronchitis. The heart-sounds were clear and distinct. The liver was found to be enlarged, extending several finger-breadths below the costal cartilages. The spleen was enormously enlarged, the tumor extending far below and to within half an inch of the umbilicus. The notch of the spleen could be felt plainly. There seems to be some pain on palpation. Examination of urine was negative. The examination of the blood showed 27,500 whites, 2,500,000 reds and 45 per cent. of hemoglobin.

Course of Disease.—The foregoing is a description of the condition of the patient on admission to the hospital. He remained in the institution until the time of his death, Aug. 26, 1909, twenty-two days after admission. The progress of the disease was rather rapid and influenced to a considerable degree by intercurrent affections and conditions.

Temperature: On admission, his temperature was slightly above normal, but during the course of the disease varied from 101° to 104° F. partly due to a bronchopneumonia and a purulent inflammation of the middle ear, which occurred on the tenth and twelfth days, respectively, after admission.

Pulse: The pulse was rapid, never below 120, but, until shortly before his death, of fair quality.

Weight: From 15 pounds and 9 ounces, the weight fell rapidly to 13 pounds during the first week. Later there was a gain of about half a pound, which was followed by a rapid decline, reaching 11 pounds on the day of the patient's death.

Skin: In addition to the purpura, which remained and increased throughout the course of the disease, marked icterus was present shortly before death.

Lungs: While, on admission, only a few coarse râles could be heard over his chest, evidences of a bronchopneumonia were present on the tenth day and continued up until the time of his death.

Digestive System: Vomiting and diarrhea occurred frequently. It was extremely difficult to find any food which would agree with the patient. Whey and barley-water were about the only things which he retained.

Urine: At first the urine was normal, but later after the administration of arsacetin it contained a large amount of albumin, also a few hyaline and granular casts.

Blood: As stated above, at the time of admission, the patient had 27,500 whites, these gradually became reduced to 16,060; the reds were 2,500,000 and were reduced to 2,287,000. The hemoglobin remained about the same, 45 per cent.

Differential count:

Neutrophils.....	6.50 per cent.
Small lymphocytes	61.00 per cent.
Large lymphocytes	18.63 per cent.
Transitionals	1.47 per cent.
Eosinophils	0.28 per cent.
Basophils	0. per cent.
Neutrophils myelocytes	1.18 per cent.
Eosinophils myelocytes	1.18 per cent.
Normoblasts	9.76 per cent.
Polkilocytosis	per cent.
Polychromatophilic red cells	per cent.

Therapy.—The treatment at first was directed entirely to the digestive organs, calomel and bismuth being employed. Later the patient was given arsacetin hypodermatically in doses of 0.05 (gr. ¾) but, on account of the occurrence of albuminuria had to be discontinued. In addition, iron and stimulants were given.

Summary of Clinical Symptoms.—Rachitis, enormous enlargement of the spleen, moderate enlargement of the liver and lymphatic glands, purpura, icterus, bronchopneumonia, otitis media, gastro-intestinal indigestion, albuminuria.

Autopsy.—This was made by Dr. F. Proescher, Pathologist, Allegheny General Hospital.

Spleen, Macroscopic Examination: The spleen measured 10 cm. (4 in.) in length, 8 cm. (3.2 in.) in breadth, and 5 cm. (2 in.) in thickness. It weighed 163 gm. (5 oz. 15 grains) and was therefore about seven times the natural size of the spleen of an infant at that age. Its consistency was firm and it was deeply notched at the lower end. The surface was mostly of a light red color, but in some parts, a dark blue discoloration was seen. On section it was found to be of tough consistency. The follicular markings were obliterated. Numerous irregular but not sharply-defined areas were to be seen. These were about the size of pin-heads, of a grayish white color.

Spleen, Microscopic Examination: The capsule, as well as the trabeculae, was thickened. The connective tissue was deficient in nuclei and hyaline in appearance. The follicles were completely obliterated. Most remarkable was the great interstitial fibrous induration, which had caused almost complete obliteration of large areas of the pulp. This induration was seen to be partly in the shape of large, irregularly scattered areas of greater or less thickness, with remnants of pulp tissue, still enclosed; or, in the form of diffusely scattered, isolated fibers, traversing the entire pulp and passing between the pulp cells. These were exceptionally well defined by the Van Gieson staining. Both the smaller and larger vessels also showed considerable fibrous induration, especially the tunica adventitia, which was enormously thickened. In some places there was also a proliferation of the intima, which led to complete occlusion of the lumen. The enormously thickened adventitia presented a marked tendency to hyaline degeneration. The fibers of the connective tissues were conglomerated into hyaline masses

1. Arsacetin is sodium acetyl arsanilate, a compound derived from sodium arsanilate. It is claimed to be less toxic than sodium arsanilate and to possess the advantage of keeping well and being sterilizable without decomposition. Adult dose,—0.1 gm. (1½ grains) to 0.05 gm. (7½ grains.) For internal administration 0.05 (¾ gr.) 3 to 4 times daily. See N. N. R., 1910, page 36.

containing no nuclei. The lumina of the majority of the blood-vessels were empty, but, where they were filled with blood, erythrocytes pale and indistinct were found, beside which were seen many mononuclear and a few polymuclear cells.

In addition, there were seen cavities, either scattered or in groups, or even long and winding, and lined by a single layer of spindle-shaped endothelial cells. They were enclosed by a dense ring of round cells, some of which were surrounded by a thick hyaline non-nuclear tissue. That we were not dealing with blood-vessels was established by the fact of the uniformity of structure of the surrounding tissue, which allowed of no distinction of the different layers of the blood-vessels. We were in all probability dealing with a cystic dilatation of the lymph spaces. The pulp consisted of numerous blood-cells and round-cell elements of varying sizes, averaging from 3 to 6 microns in diameter. These mostly showed a round or slightly lobulated nucleus, with scanty protoplasm. Some of the nuclei were rich in chromatin, others showed only a framework of chromatin; many of the large mononuclear cells showed eosinophil granulations. In addition, a few spindle-shaped cells resembling endothelium cells were found. Large giant-like cells with phagocytic enclosure of red blood cells were scarcely seen.

Liver, Macroscopic Examination: The liver was 9 cm. ($3\frac{1}{2}$ in.) in length, 16 cm. ($6\frac{1}{2}$ in.) in breadth, 4 cm. ($1\frac{1}{2}$ in.) in thickness and weighed 345 gm. (11 oz. $\frac{3}{4}$ dram). It was of firm consistency, its edges were sharp and the color a yellowish red in some places, while in others it was more of a yellowish color. On section it was of a bright yellow or red color. The acinous delineations were quite plainly visible. At the periphery the acini were of a sulphur yellowish color; but, in the center more of a yellowish red and cloudy. Throughout the entire parenchyma there were numerous punctiform hemorrhages. The vessels were not enlarged. The tissues were moist and on pressure a thin, bloody fluid exuded copiously. The gall-bladder contained a large quantity of tough yellowish green bile.

Liver, Microscopic Examination: The parenchyma of the liver showed extensive tough infiltrations, especially the middle acinous zone. The liver cells in the center of the acini showed parenchymatous degeneration, partly sclerotic, partly necrotic. Irregularly scattered were seen larger and smaller hemorrhages (extramedullary blood formation) as well as larger and smaller round cells, with deeply stained nuclei. Some of these were round, others lobulated. The periportal connective tissue was very much thickened and infiltrated with round cells; also the walls of the hepatic artery and portal vein. Van Gieson's stain showed regularly distributed interstitial induration.

Kidneys, Macroscopic Examination: The two kidneys together weighed 100 gm. ($3\frac{1}{2}$ oz.); adrenals 6 gm. (90 gr.). The renal capsule was easily detached. The surface was lobulated and of a pale yellow, with numerous punctiform hemorrhages. On section the cortex was found to be enlarged, of a pale yellow color and slightly protuberant. The cortical marking was only present in form and was very much obliterated. Small white stripes were visible. The pyramids were somewhat more sharply defined by a more yellowish color. The left kidney presented practically the same appearance as the right one, but was somewhat redder in color. The mucous membrane of the renal pelvis was pale, with numerous punctiform hemorrhages.

Kidneys, Microscopic Examination: Both kidneys showed severe parenchymatous degeneration, with extensive necrosis of the epithelium. Slight hemorrhages into the glomeruli and uriniferous tubules were found. Hyaline masses were found in some of the canals, especially in the collecting ducts. On frozen section and with the Sudan stain fatty morphosis was found in some of the tortuous and straight uriniferous tubules.

Heart: The heart weighed 50 gm. ($1\frac{1}{2}$ oz.) and was well contracted. The musculature was of a cloudy, gray, yellowish color. Numerous small hemorrhages were found beneath the epicardium. The valvular apparatus was intact, the for-

men ovale closed. The intima of the large vessels, as well as that of the valves, was slightly discolored, a yellowish green.

Lungs: The lungs weighed 175 gm. (5 oz. 125 gr.). **Right lung:** In the upper lobe there was an irregular slightly depressed circumscribed spot about the size of a twenty-five-cent piece. The spot was discolored and dark gray in appearance. In the lower lobe there was also a spot about the size of a ten-cent piece, which was also depressed and dark gray in appearance. On section the entire pulmonary parenchyma seemed to be studded with the above-described areas. It was entirely airless, and on pressure a dark red turbid fluid exuded. **Left lung:** In the upper and lower lobes similar areas were found.

Stomach: The stomach contained a small quantity of fluid. The mucous membrane was atrophic and showed numerous punctiform hemorrhages.

Bowels: A small quantity of greenish white masses were found in the duodenum. The mucous membrane of the jejunum was also atrophic. In the colon a large quantity of fluid and dark green feces were found. The mucous membrane of the transverse colon was very much injected; that of the ascending and descending colon was pale.

The autopsy findings in this case correspond closely to those in the case described by Banti. Here we also find the fibrous changes in the trabeculae and the follicles of the spleen, and a great diminution of the cells. We also have a diminution of leukocytes and the red corpuscles.

The diagnosis of this case as belonging to the class of cases described under the term of pseudoleukemic anemia of infancy can scarcely be questioned. The low leukocyte count, the diminution of the red blood-corpuscles below half the normal, together with the enlargement of the spleen, moderate enlargement of the lymph-nodes distinguishes it from leukemia and simple or pernicious forms of anemia. Whether this case is to be considered a secondary anemia in connection with the rachitis with a toxic basis; or, as a distinct organic disease, it is difficult to decide. The organic changes in the spleen and liver would indicate a primary diseased condition of that most important blood-making organ, the spleen. The evidence seems about equally divided and in view of the fact that so far but few autopsies have been recorded in these cases, it is impossible to come to any definite conclusion in this single case. I hope that by having carefully studied and recorded the findings of this interesting case I have added a small mite to the literature of this important disease.

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ABSTRACT OF DISCUSSION

Dr. J. F. HULTGEN, Chicago: In the last few years I have had a number of similar cases which have made me think a good deal of this question. The case just reported undoubtedly belongs to that class of anemias of infancy which we call, for want of a better name, pseudo-leukemia. Some of my recent cases have shown a combination of leukemic and leukanemic changes; that is, not only very marked qualitative and quantitative changes of the leucocytes, but also marked alterations in the number and form of the red blood-corpuscles. Others run into a true leukemia and end in death. Dr. Elterich's case does not belong to this last special class and I am glad he mentioned that. Assuming that all the leukocytes develop from the small lymphoid cell, those infections characterized by specific changes in the blood must be due to an irritation of the leucogenic system. Whether or not this condition is recognized at an early stage, or advances to a splenic anemia or Banti's disease before it is diagnosed makes no difference. It is the same disease, only a later stage. I think we are almost smothered by a multitude of names in the description of the so-called pseudo-leukemia of childhood. Any severe dis-

turbance of the infantile leucopoietic system may in the first place produce partial or complete leukemia. Whether we have a polynuclear or a mononuclear or a lymphatic leukemia, does not alter the case. It simply depends on the hastening or the slowing of the processes of maturation of the lymphocytes. Later on, after months or years the patients come to our offices, and finding a large spleen, ascites, etc., we call it Banti's disease. The pathogenesis of infantile pseudo-leukemia does not reside in the spleen alone. It depends on infectious, or toxi-infectious lesions of the lymphoid tissues. I think it is easy to believe that as long as there is some leucopoietic tissue left there may be an acute leucogenic crisis. The blood examination then would show a leukemia. A blood examination made later on will likely show a splenic anemia, or an *anémie primitive* of French writers, a leukanemia, or Banti's disease, etc. Or the patient may go on to a pernicious anemia. This is also easy to understand if we consider that in irritation of the leucopoietic cells we must also have a hematopoietic irritation. I think that all these anemias should be looked on as the results of an infection of the lymphoid or leucopoietic system in the gastro-intestinal canal, which may or may not be noticed at the time of its occurrence. Its various forms are nothing but the variations common to all individuals. In childhood the death of these patients is due to exhaustion. Perhaps there are toxic symptoms, but they usually die with the clinical picture of asthenia, though this is often preceded by bronchopneumonia. I think the abdominal symptoms are always at the bottom of this condition, though they are not usually recognized.

DR. C. F. WAHRER, Fort Madison, Iowa: I have seen three cases that would come under the author's name of the infection. The first patient, after five months, died. The second after three months died, and the third recovered. The recovery may throw a little doubt on my diagnosis, but I did the best I could with the means at hand. We had a symptom-complex of an affection that we may class under the diagnosis named by the essayist. The children all had the symptoms that have been named briefly by the author. There was anemia, there were purpuric spots and a history of syphilis in the ancestry of the first two; in the last one, a gastro-enteric trouble with numerous and profuse hemorrhages from the intestinal canal. The treatment in the first two cases was addressed chiefly to the origin of the disease, *i. e.*, the syphilitic condition, and in the last case it consisted mainly in the administration of Fowler's solution, iron and remedies addressed to the gastro-intestinal tract. This child, after ten years, is still in perfect health.

DR. THEODORE J. ELTERICH, Pittsburg, Pa.: I am not in a position to classify these cases according to their pathologic findings. I had only one case in which the diagnosis seemed positive. In one or two other cases no blood count was made and the patients died before they could be removed to the hospital for observation. The symptoms were those of rickets, with an enlargement of the spleen and anemia.

CHOKED DISC IN ITS RELATION TO CEREBRAL TUMOR AND TREPHINING*

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When I was invited to be the guest of the Section on Nervous and Mental Diseases of the American Medical Association, and to read a paper before this famous body, I felt highly honored, and it was with the greatest pleasure and thanks that I accepted this invitation. Having leave to choose the subject I did not hesitate long and selected the important theme of choked disc in its relation to cerebral tumor and trephining.

There is hardly any point which has for so long a time been subject to as much controversy as the patho-

genesis of choked disc. In spite of numerous works, experiments, clinical observations and pathologic-anatomic investigations, we have not succeeded in bringing about an agreement between the various investigators on this topic. Just lately the old quarrel on the pathogenesis of choked disc has become active again in Germany.

Surgical experience being, to my mind, of great importance for clearing up the origin of choked disc. I was convinced that America would be the best forum for discussing this question, because America possesses a greater experience on the effect of and indications for trephining in cerebral tumor than we do in Germany, thanks to the studies and works of Taylor, Mills, Spiller and Frazier, De Schweinitz, Weisenburg, Putnam, Knapp, James Bordley and also to the new methods of Harvey Cushing, not forgetting, however, England's contributions, by Horsley, Gowers, Gunn and Leslie Paton.

The fact that I was an ophthalmologist at first and devoted myself to neurology later has brought it about that I have been occupied for twenty years with studying the changes of the fundus of the eye in diseases of the brain.

By request of Professor Uhthoff of Breslau, I made a report on the pathogenesis of choked disc before the seventy-sixth *Versammlung Deutscher Naturforscher und Aerzte* in Breslau in 1904. Since that date so much new work has been published, that I deem it necessary to give you a brief outline of the stand we take on this important question in Germany.

REVIEW OF WORK AND THEORIES ON CHOKED DISC

Tuerck was the first, who in 1853, when describing a case of cerebral tumor with retinal hemorrhage expressed the idea, that the changes in the fundus of the eye were due to increase of intracranial pressure. However, only in 1860 the scientific world became acquainted with the so-called choked disc through Albrecht von Graefe's work on complications of optic nerve-inflammation with brain diseases. Von Graefe saw the cause of choked disc in brain pressure, due to cerebral tumor, the sinus cavernosus being thus compressed and the voiding of both the vena ophthalmica and the vena centralis retinae being inhibited; bringing about dilatation and twisting of the retinal veins as well as edematous swelling of the optic disc. He explained the inflammatory changes, first, as originating from retinal extravasations of blood; secondly, from the irritating effect of swelling of the optic disc, still increased by toughness of the scleral ring.

Von Graefe's hypothesis, however, soon encountered opposition. Hughlings-Jackson took the optical affection for a reflex symptom, but it was the anatomic facts found by Sesemann which principally disproved the theory. It was he who proved that the central retinal vein has an off-flow into the facial veins, quite independent of intracranial pressure. Moreover, Sesemann argued that compression of the sinus cavernosus could not be effected as easily as one might think. Later these statements made by Sesemann in 1869, though accepted everywhere, even by von Graefe himself, have met opposition from the well-known anatomist, Merkel, and from Gurwith, who, on the basis of extensive anatomic investigations, argued that the greatest part of the orbital venous blood flows into the sinus cavernosus. Quite recently J. Tudeich and Krüdener have endeavored to uphold the old theory of von Graefe

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for those cases of choked disc, in which intracranial pressure is localized.

The second principal theory of choked disc is the one brought forward by Schmidt-Manz's theory of mechanical transportation, based on Schwalbe's discovery of the communication between the intravaginal space of the optic nerve and the intermeningeal space of the brain. According to the views of both these authors a vaginal hydrops of the optic nerve is caused by increase of intracranial pressure, for instance, owing to cerebral tumor, and consequently, incarceration of the intraocular end of the optic nerve would occur, choked disc henceforth resulting.

Von Schulten, by his experiments, confirmed Schmidt-Manz's theory, which was readily accepted, but soon also vigorously combated.

In 1881 the famous ophthalmologist, Leber, brought forward a new theory of choked disc before the London Congress. According to Leber it is a real inflammatory process, a papillitis, not preceded by any stage of pure edema or pure venous stagnation. The originators of inflammation are in the fluid which has come from the intermeningeal space of the brain into the intervaginal space of the optic nerve. Even though a real hydrops of the optic nerve were absent, yet choked disc could occur, because the point is not the quantity of the fluid, but its quality.

Deutschmann supported the theory of Leber by several works and established the hypothesis that the cerebral tumors produce toxins, which call forth inflammation of the optic nerve and its sheaths.

Besides Hughlings-Jackson, Gowers also was of the opinion that intracranial tumors could cause neuritis optica through irritating influences acting as foreign bodies.

In modern times Zellweger and Elschnig, the latter of whom disposed of twenty-eight cases of choked disc, which he examined microscopically, declared themselves for the Leber-Deutschmann inflammatory theory. Elschnig says, that in intracranial tumors the primary is a neuritis of the optic nerve, whereas edema is secondary and only an accompanying symptom.

Liebrecht, in 1902, is likewise of the opinion that the primary manifestations are inflammatory changes within the optic sheaths, in connection with which a stagnation of the lymph occurs in the optic nerve and disc.

We may quote, among other theories, the one of Parinaud. According to him the various intracranial diseases call forth a stagnation in the optic disc only in the case of complication with hydrocephalus internus. With this is connected edema of the brain, which by itself affects an equivalent edema of the optic nerve. This may be followed by inflammation—*neurite adéquateuse*. In the presence of edema of the optic disc, according to Parinaud, the diagnosis of hydrocephalus and cerebral edema only is admissible.

Lourdill accepted Parinaud's theory. However, he considered the primary change to be an edema of the ependymalgia, which continues in a direct way in the glia of the chiasm and of the optic nerve.

Also, according to the opinion of Ulrich (1887) cerebral edema propagates into the optic nerve.

In 1904 extensive researches (forty-six eye examinations) made by Kampherstein from Professor Uhthoff's clinic at Breslau, proved that the most invariable symptom consisted in an interfascicular edema of the optic nerve. For this reason in most cases choked disc is nothing but an edema propagated from the brain, penetrating into the optic nerve, and through it into the

optic disc by the way of the lamina, creating hereby incarceration of the intraocular optic nerve-end a swelling within the rigid scleral ring.

Benedict and Adamkiewicz occupy a position apart with regard to the pathogenesis of choked disc. The former believed the vasomotor nerves to be irritated by the tumor, thus causing an inflammation of the optic disc by reflex. The latter regards the choked disc as the result of a neuroparalytic inflammation due to irritation of the trophic centers proper to the optic nerve.

Knapp, Deyl, von Gross and Yamaguchi published cases to prove the causation of choked disc through compression of the central vein.

PRESENT-DAY THEORIES

In our days we seem to be reaching a compromise. Thus Greeff expressed himself as follows: "It seems to be the case that stagnation of the cerebrospinal fluid plays an important rôle, but that inflammatory irritations are concurring."

In 1907 I published a treatise, in which I pointed out again energetically my views, which I had presented in 1901, viz., that a palliative operation should be performed in cases of inaccessible brain tumor in order to avoid threatening blindness.

SUMMARY OF CASES

I disposed of nineteen cases. In two of these choked disc decreased only after the trephining hole had been enlarged, allowing a great outflow of cerebrospinal fluid. In two cases decompression had no effect whatsoever as far as the choked disc was concerned. These were cases of extraordinarily large, rapidly increasing brain tumors. In one case only, a tumor of the base, the operation was followed by very high fever and rapid exitus. No doubt it must have been one of those cases which have just been described by Dr. George J. Jacoby in New York, because post-mortem examination did not explain the cause of the hyperthermia.

In all the rest of the cases the effect of decompression on choked disc was obvious.

In one case I was able to observe, as did Cushing in two cases, a decrease of choked disc directly after decompression.

I apply this term in the sense of Frazier, as he explained in an address before the Toronto Academy of Medicine last year. He said: "The term decompression implies not simple trephining, but the removal of the dura."

DECOMPRESSION OPERATION

In all my cases decompression has been done in this sense. Often I could observe that the choked disc decreased in the measure in which the outflow of cerebrospinal liquor increases. As a rule it takes several weeks or months to flatten down.

In order to obtain good results as far as vision is concerned it is imperative to operate early, viz., while the visual power is still of use. In some cases I have seen vision improve considerably after decompression.

E. von Hippel, in his studies of the literature in 1908, arrived at the same result. He does not, however, give his personal experience.

Philip Coombs Knapp, in 1906, published a vast number of cases in which no tumor was found by operation or in which decompression alone was done. Knapp affirms that the development of choked disc is arrested only in about half the cases. I regret very much that Dr. Knapp is not present. I would ask him whether he

any ophthalmologist would be willing to stake his reputation on the diagnosis; nevertheless, when the disk declines and the patient recovers there is perfect vision. I am confident that it is not possible to locate the tumor by a study of the disks. While there are suggestive signs they are by no means of positive value. As an example we had a long list, possibly twenty-five or thirty patients, with the greatest choking on the side of the tumor. We were almost persuaded. Then came a series of several cases with the greatest choking on the opposite side. As a rule, however, the greatest choking—or rather the greatest change in the optic nerve—is on the side of the tumor, probably 65 or 75 per cent.

Tumors of the cerebellum, as a rule, give rise to a greater swelling than tumors farther forward. Anatomic variations in the optic nerves make a difference in the degree of swelling on the two sides. Consequently it must be expected that tumors, even of the same histologic structure, will result in a difference in degrees of swelling in different individuals. In our experimental work on animals, where the choked disk was produced with simple saline solutions, the greatest choking usually occurred on the contralateral side. My impression is that the same rule will hold good in patients with intracranial injuries in whom there is hemorrhage. Wherever there was solid pressure, such as produced by paraffin, the greatest change was usually on the same side.

One thing is absolutely certain: a decompressive operation should always be performed when one is dealing with a stationary or increasing choking of the optic disk. There is no excuse for sitting by and waiting for vision to decline; every bit lost may be gone forever, for one may have waited for the beginning of a very rapid end. And it is well to remember that if the sight is not obliterated by pressure, it may be by the new connective tissue which forms in the nerve and in the disk—as the result of long irritation. Like other scar tissue this will shrink, and as it shrinks it snuffs out the life of the nerve.

DR. A. SAENGER, Hamburg, Germany: I am much gratified that my paper has elicited such a lively discussion, and, above all, that Dr. Parsons, the eminent ophthalmologist of London, agrees with me. He declares that choked disk is not an inflammation but an edema of the optic papilla. This statement is very important as coming from a very competent authority on pathologic anatomy in the field of ophthalmology, and also as coming from the English school. We all know how tenaciously the conception of the inflammatory nature of choked disk has been maintained in England. Even Gowers, that well-known authority, has championed this view.

I hope that now there will be a general acceptance of the view that the increased pressure on the brain is the main factor in the origin of choked disk, manifesting itself in the edema of the papilla. There may be inflammatory changes besides, but they are of secondary nature. The inflammatory theory of choked disk, as Leber and Deutschmann propounded it, can no longer be maintained. I am familiar with Dr. Bordley's work on the subject, done in collaboration with Cushing. I visited the famous Johns Hopkins Hospital at Baltimore a few days ago and was amazed at the extraordinary amount of material in the field of brain surgery which is at Harvey Cushing's disposal there. I had also an opportunity to see this master in his special field of science operate. I admired the originality of his technic, the position he gives the patient and his extreme caution and conscientiousness in the execution of the operation. We stand on the same ground in respect to early trephining with a tumor in the brain. Cushing, however, goes beyond me in this. He trephines even before actual choked disk has developed, while I prefer to wait until with existing choked disk the vision begins to show impairment.

My warning to refrain from operating too early is based on my last series of five cases, on the latest experiences with pseudotumors, swelling of the brain, chronic meningitis and brain syphilis with negative Wassermann reaction. The deceptive cases of brain syphilis, which so often runs a disguised course, should be constantly borne in mind, and specific "mixed" treatment should invariably be given a trial before any operation on the brain. I have occasionally encountered unilateral choked disk, far more frequently on the side corresponding to the tumor, but still, though rarely, sometimes on

the opposite side. I am persuaded that individual changes in the optic foramen are responsible for the lack of development of choked disk. In one case I was able to determine this to be the fact, although it is technically a difficult matter to demonstrate beyond cavil this narrowing of the optic foramen. It is to be hoped that some research worker may turn his attention especially to this question ere long.

DISLOCATION OF SHOULDER-JOINT COMPLICATED BY FRACTURE

WITH REPORT OF TWO CASES

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The fracture of a dislocated humerus is so rare an accident that up to 1894 a most careful search had revealed only 117 cases, and the surgeon reporting this fact adds that no single observer has met more than five.¹

The text-books² take this subject up in a very limited manner.

This injury is usually caused by the patient having received a heavy blow upon the shoulder, or having fallen on the shoulder or on the outstretched hand or elbow. Rare as these accidents are, a recent authority³ (1906) says that they are more frequent and more important than fracture of the scapula, though the latter, as well as fracture of the clavicle, also occurs.

In treating dislocation complicated by fracture the dislocation should be reduced as soon as possible by one of several methods in use, the one generally employed being that described by Kocher in 1870, and is described by Keen as follows:

"The patient is seated, and the surgeon stands facing him and on his injured side. He bends the elbow and grasps it in one hand, while he seizes the wrist with the other. He then bends the elbow, and adducts the arm until the elbow touches the trunk. The arm is immediately rotated outward as far as it will go, and being thus adducted and rotated outward the elbow is carried well forward and upward. The whole arm is then rotated inward, so that the hand sweeps over the chest, while the elbow is brought back to its original level. The bone slips into place with a hardly perceptible click in a successful case, and the shape and movement of the joint are at once

* Read before the Association of Atlantic Coast Line Railway Surgeons, May 17, 1910.

1. Since the article written by Dr. Charles McBurney and Dr. Charles N. Down (Ann. Surg., April, 1894), there have been several contributions on the subject, the principal ones being as follows:

Andrews, E. W.: Surg., Gynec. and Obst., November, 1905.
Royster, H. A.: The Management of Dislocation of the Shoulder-joint Complicated by Fracture of the Neck of the Humerus. The Journal A. M. A., Aug. 10, 1907, p. 487.

Mason, J. M.: Ann. Surg., 1908, xlvii, 672.
Flint, C. P.: Am. Jour. Surg., 1908, xxii, 161.
Spencer, W. G.: Proc. Roy. Med. Soc., London, 1908-9, II, Clin. Sect., p. 226.

Toubery: Rev. internat. de méd. et de chir., 1908, xiv, 183.
The most valuable contribution during the year 1906, however, was the article written by Dr. Robert Jones on Certain Injuries Associated with Displacement of the Head of the Humerus, Brit. Med. Jour., June 16, 1906, p. 1385.

2. Burghard, Frederick F.: System of Operative Surgery, London, 1909, 575-581.

Eisendrath, Daniel: Dislocations, pp. 395-406.
Keen: Surgery, Philadelphia, 1907; Fractures, pp. 162-181.

Power, D'Arcy: Green's Encyclopedia and Dictionary of Medicine and Surgery, Chicago, 1908, III, 351; IX, 143.

Rixford, Emmet: American Practice of Surgery, New York, 1908, IV, 31-50.

Stimson, Louis A.: Treatise on Fractures and Dislocations, New York, 1905.

Scudder, C. L.: The Treatment of Fractures, Philadelphia, 1907, 594.

Spencer, W. G., and Gask, G. E.: The Practice of Surgery, London, 1910, pp. 338-340; p. 368.

3. Jones, Robert: Brit. Med. Jour., June 16, 1906, p. 1368.

restored." All this must be done slowly and gently to avoid causing a fracture at the surgical neck. "The Kocher method is based on the exact knowledge of the pathologic conditions, and is the most perfect one for this reason."

The traction method is employed when it is impossible to reduce the dislocation by the above means. There are several ways of applying this, a simple one being to grasp the arm above the elbow and make a steady traction downward and outward, then gradually abduct the arm until it is nearly at right angles with the body. Pressure is then made over the head in the axilla.

Another method is that of Stimson, in which weights are attached to the elbow or wrist (the arm hanging free of the floor as the patient lies upon a table). Ten pounds are added at times one or two minutes apart until 40 pounds have been reached, and in from five to fifteen minutes the head is advanced toward the glenoid cavity by adducting the arm against the fist that has been placed in the axilla.

In fractured dislocations an anesthetic should be administered and "every method should be tried in order to reduce the head before performing operation." Where other efforts fail McBurney's operation is advised, in which an incision is made in the soft parts on the outer aspect of the upper fragment, extending down to the bone, and a hole is drilled in the latter, through which a stout hook is inserted and direct traction made on the upper fragment in the proper direction.

Dr. Robert Jones reports twenty-two cases of fracture of the head of the humerus associated with dislocation of the shoulder, and after advising the reduction of the dislocation as soon as possible by one of the accepted methods, he adds: "Having reduced the dislocation, the fracture of the humerus is of comparatively little moment and need not be dwelt on." Perfect apposition is not necessary to good results, and he strongly advises against the wiring of fragments in fracture through the surgical neck, his experience with many hundreds of cases of this fracture showing that wiring would not have been of service in a single instance. In order to prevent stiffness of movement after the parts have united, massage and passive movements should be regularly practiced between the fourth and eighth weeks.

For fracture of the clavicle and scapula with displacement the dislocation should be reduced and for the latter cases the arm need only be kept at rest and protected from accidental injuries by the use of a shoulder cap, the use of the axillary pad also being considered useless and even dangerous by some surgical authorities. When the clavicle is fractured Sayre's method of strapping the arm is advised.

CASE 1.—History.—The patient came into my office Sept. 30, 1909, saying that on July 18 he had fallen out of a wagon and struck on his right shoulder. He could not move his arm; pain was severe, but he got up and went to a physician, who said that he had a dislocation. This physician tried to reduce it without an anesthetic, but could not, so sent him to another physician in an adjoining town, who, on July 20, gave the patient an anesthetic. When he woke up he was told that his arm had been put back in place and that if he would keep it in there for three weeks it would be all right. He removed the bandage at the end of the three weeks and found his arm in the same position it was before. His arm had been paining him ever since and he could not use it only to a limited extent.

Examinations, Treatment and Result.—The first examination showed shortening of the humerus, very small amount of adduction and abduction, anterior and posterior motions being limited, and on examination with the x-ray made a probable diagnosis of fracture dislocation. I sent him to the hospital, gave

him an anesthetic, and on manipulation found a fracture at the surgical neck of the humerus and anterior dislocation. I was unable to reduce his dislocation, so put the arm up in as good position as possible, and when the patient had recovered from the anesthetic advised him to let me operate and put his arm in proper position. This he refused to do and went home. I examined the patient on May 1. He said that he had no pain, but he could not move his arm very much, although his movements were greater than when he left here. He had no adduction and very little abduction, anterior and posterior movements were good. He still declines operation, because, as he says, "My arm doesn't hurt me and I am getting better all the time."

CASE 2.—History.—The patient, who was referred to me by Dr. H. on February 18, said that the last he remembered was that he was standing at a lunch-counter drinking coffee; a policeman told him he fell over and had a fit and that they picked him up and walked him home. This was on Nov. 2, 1909. A physician was sent for on November 3, who anesthetized the patient and put his arm in splints. Not having obtained any use of his arm, the patient went back to the physician on December 3, and was again given an anesthetic and the dislocation supposedly reduced again. This time the arm was put up in plaster of Paris; the splint was left for three weeks and then taken off. The arm was still severely painful and useless.

Examination, Treatment and Result.—On careful examination, including the use of the x-ray, I found a retroglenoid dislocation with fracture of the anatomic neck of the humerus. I advised operation and on Feb. 22, assisted by Dr. Edwards, I opened the joint, using the anterior incision, took out the head of the bone, eurented the glenoid cavity and put the arm up in position, kept it immobilized until the wound healed, and since then the patient has had constantly passive and active motion with massage and as a result is getting good use of his arm. I believe that if I had used the posterior incision I would have had less difficulty in removing the head of the humerus.

In comparing my two cases I find that the patient on whom I operated has the most serviceable arm and therefore, I should advise all persons who have dislocation of the humerus with fracture in which reduction has not been obtained and there is restricted motion to submit to an operation.

All patients with unreduced retroglenoid fracture dislocation should be operated on, using posterior intermuscular incision recommended by Dr. W. G. Spencer.

THE CONTRIBUTION OF EXPERIMENTAL TO HUMAN POLIOMYELITIS *

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Epidemic poliomyelitis has within three years become a common and widely distributed disease in the United States. Prior to 1907 the epidemic disease occurred rarely, only, in this country. Since 1907 it has prevailed from the Atlantic to the Pacific Ocean, and probably few states have entirely escaped its ravages. Judging from the fragmentary reports which have come to my attention it would seem as though the southern states had escaped wholly or in large part, but this apparent discrepancy may result from failure either to recognize the nature of the epidemic disease or to report on it, or may be due simply to the circumstance that the fact of its occurrence in the South has not chanced to come to my attention.

*A rather complete bibliography accompanied this article and is included in the author's reprints. Because of the space required, it is omitted from THE JOURNAL.

It is significant in respect to this point that within the period mentioned epidemic poliomyelitis has prevailed in Cuba. Before 1907 epidemic poliomyelitis had been becoming more frequent in northern Europe, and particularly, so far as reports indicate, in Scandinavia. Beginning in 1907 or thereabout a pandemic of the disease arose. The United States, Austria, Germany and latterly France have certainly participated in the epidemic outbreaks. Whether still other countries have been similarly visited I cannot say, but it is highly probable that they have.

It is a matter of significance that the original foci of the epidemic disease in the United States, occurring in the summer of 1907, were among the Atlantic seaboard, and that the two centers of population most seriously affected were about Greater New York and Boston. The particular point of importance in this regard arises from the fact that those two centers of population receive first and in most concentrated way the immigrant population from northern and eastern Europe. Since, moreover, the best established endemic focus of epidemic poliomyelitis recorded in the last decade or two has been the countries of Scandinavia, the further fact becomes significant that the second large isolated outbreak of the disease in this country occurred in that part of the middle west, namely about Minnesota, which receives a large influx of immigrant population from Norway and Sweden.

CONTAGIOUSNESS

The studies especially devoted to the question of the mode of spread of poliomyelitis, which have been conducted with unusual energy and perspicacity in the last few years, would seem to have rendered contagion highly probable. If the views respecting the manner of the transfer of the contagion put forward with good reason should become established, the explanation of the extension of the epidemic centers of poliomyelitis from northern Europe to America will have become obvious. The data collected in Scandinavia indicate that the contagion can be carried by intermediate persons from the stricken to the healthy, and from patients not frankly paralyzed, but suffering with slight or so-called abortive attacks of the disease. Moreover, the incubation period of the disease would appear to vary within considerable limits, being sometimes not more than two or three or four days in length and at other times as much as twenty days, the average being eight or ten days, and thus affording opportunity for the transportation across the Atlantic Ocean of the incipiently infected. This particular problem would receive considerable illumination from facts which are ascertainable, such as the number approximately of recently arrived immigrants who developed poliomyelitis in this country since 1907. I am not aware that any effort has been made in the course of the several recent extensive investigations of the epidemiology of the affection to elucidate this important point.

The idea of a contagion in respect to epidemic poliomyelitis is not a new one, but appeared in the literature more than a quarter of a century ago, and of late has been frequently invoked. The clinical course of the disease indicated an infectious origin, but up to very recent times no convincing knowledge concerning the nature of the agent causing epidemic poliomyelitis existed. Various bacteria, and especially certain cocci, have from time to time been isolated in cultures from fluids obtained by lumbar puncture from patients suffering from the epidemic disease, or from specimens of the central

nervous system removed from victims at autopsy. These bacteria did not conform to one species or group of micro-organisms, and did not suffice to set up poliomyelitis in animals. They can be accounted for more satisfactorily as contaminations or secondarily invading bacteria than as the cause of the disease. The epidemic of 1909 in this country, in France and in Germany, led to a renewed study of the nature of the infection, in the course of which the more subtle and recent methods of bacteriology were employed. These methods led almost simultaneously in the United States by Dr. Lewis and myself and in France by Landsteiner and Levaditi, to the discovery that the infectious agent was an extremely minute micro-organism that readily passed through the pores of earthenware filters and constituted, therefore, an example of the so-called filterable viruses, of which at the present time several examples are known to cause infectious diseases in man and the lower animals. The filterable nature of the virus has now been confirmed wherever the subject has been accurately investigated. On acquisition of the fact of the nature of this virus, and of the further fact, on which the discovery of the nature of the virus actually depends, that both the higher and lower monkeys are subject to the experimental disease, rests the recent great advances which have been made in the investigation of epidemic poliomyelitis.

EXPERIMENTS WITH MONKEYS

It was predictable that the effort would be made as soon as circumstances favored to transmit poliomyelitis to monkeys. Since the disease appeared not to be transferable to the more common species of warm-blooded animals, usually available in laboratories, it became imperative to attempt its transfer to other species more nearly related to man. The last few years had indeed afforded several brilliant instances in which progress in determining the nature or the conquest of important infectious diseases had resulted from the use of apes and monkeys. Two examples illustrative of this statement are afforded by syphilis and epidemic cerebrospinal meningitis. Hence, in 1907, when the first epidemic appeared in New York and vicinity, we endeavored to transfer poliomyelitis from human beings to monkeys. Unfortunately we were at this time limited merely to fluids obtained by lumbar puncture from cases at different stages of the disease. I say unfortunately for the reason that we had the idea originally of bringing the supposedly infected material directly into relation with the nervous systems of monkeys. This we indeed did with the fluids obtained by lumbar puncture, from which we failed entirely to produce any symptoms that we could discover, including paralysis. During the epidemic of 1907 we did not secure organs from a case of pure infantile paralysis, and we failed, therefore, in our intention to inoculate monkeys from the spinal cord. Had we secured such material the discovery of the nature of epidemic poliomyelitis would, it is fair to assume, have been made two years earlier than it was. It was not until September, 1909, that we secured the spinal cord from two cases of infantile paralysis in human beings, which specimens were employed for the inoculation of monkeys by direct injection of an emulsion into the brain through a trephine opening. The first inoculations were successful. The animals immediately after their recovery from the ether anesthesia were lively and normal. They remained apparently in perfect health for a number of days, when paralysis set in. The spinal

cord derived from these animals was and is still being employed to transmit the infection to still other monkeys.

During the summer of 1909 Landsteiner and Popper published an account of a successful inoculation of two monkeys with the spinal cord derived from a case of infantile paralysis in a child. They employed the peritoneal cavity as the site of injection, which led to the development of paralysis, but in endeavoring to continue the transfer of the virus by intraperitoneal injection of other monkeys they failed entirely. Strauss and Hutton in this country, who repeated in the late summer or early autumn of 1909 the experiments of Landsteiner and Popper, met with the same interruption of their work. Using the peritoneum as the avenue of entrance of the virus, they succeeded in producing paralysis in a monkey inoculated with the human cord, but failed to produce paralysis when they transferred to other monkeys a suspension of the spinal cord of the paralyzed monkey. In view of these experiments, and of still other similar ones made by different investigators, it is probable that the virus contained within the human cord is on the whole more active when implanted in the monkey than is the virus contained within the monkeys' spinal cords that is derived by proliferation immediately from the virus of human source. The question for the moment remains open whether this disparity depends on the quality of the virus or the number or state of concentration of the organisms. Later studies, to which reference will be made, indicate that the virus of poliomyelitis is subject to qualitative variations, from which it follows that the sudden change of host might tend to a reduction in the potency of the virus, the fact of which reduction is exhibited when the virus is compelled to traverse a considerable territory and to overcome certain natural obstacles before it reaches the central nervous system, on which it became implanted. The fact of this qualitative change is far less apparent when the altered virus is brought immediately into relation with the tissues of the nervous system.

CLINICAL EFFECTS OF INOCULATIONS

In noting the clinical effects of the inoculations we have paid attention to a number of conditions and signs that had already been indicated by observations made on the human affection. We have, therefore, observed an incubation period represented by the interval elapsing between the time of inoculation and the appearance of the first definite paralysis, which incubation period includes certain manifestations which have been noted as prodromal symptoms. Thus the shortest period noted as elapsing between the inoculation and the onset of paralysis has been three or four days and the longest period thirty-three days, the average period being eight or nine days. The prodromal symptoms consist of a state of undue nervousness and excitability on the part of the inoculated monkeys, or inability to fix the gaze, with which is associated a wrinkle and mobile rather than smooth and placid cast of countenance, and an erection of the hairs over the body. These symptoms are most marked for a period of from six to eight hours before the onset of the paralysis. We have not noted any constant elevation of temperature or gastro-intestinal disturbance. The onset of paralysis either when the prodromal symptoms have occurred, or when they have been absent or undetected, tends to be sudden. The paralysis affecting any of the larger groups of voluntary muscles

tends to be accompanied with other weak or partially paralyzed groups of muscles. In certain animals the medulla was first affected, and in them death sometimes occurred before the development of actual paralysis. In respect to location, the lower and upper extremities were affected oftener than the muscles of the trunk, and the spinal paralyzes were much more frequent than the cerebral. Sensory disturbances occurred, but their investigation was much less satisfactory than the investigation of the motor disturbances. In other words, there is a striking similarity between the frank examples of epidemic poliomyelitis, whether occurring spontaneously in man or produced experimentally in monkeys. A further correspondence exists in this: Slight and evanescent or abortive attacks of the disease have been described in human beings, cases the nature of which would not be suspected were it not for the fact that they occur during the prevalence of epidemics of frank paralysis; and similar abortive or evanescent attacks have been noted among inoculated monkeys, but rarely. There is, however, one important point in which the experimental disease happily differs from the human affection. The mortality in the human affection rarely exceeds 10 per cent. of those frankly attacked, and frequently it is much less than that. The experimental disease, on the other hand, has terminated fatally in about one-half of the first series of animals inoculated, and in a much larger proportion of the later ones. Hence the experimental disease is more highly fatal than the spontaneous disease.

PATHOLOGY

A still further correspondence between the spontaneous and experimental disease is found in respect to the pathologic changes or lesions. The gross lesions visible to the naked eye present in the spinal cord and medulla of monkeys consist of congestion and hemorrhage into the gray matter, chiefly but not exclusively confined to the anterior horns. On the other hand, the general appearance of the spinal cord, medulla and brain are not greatly altered, and the visible effects are no proper measure of the damage inflicted by the virus.

The microscopic lesions are more severe and widespread in the spinal cord than in the brain, and more pronounced in the gray matter and membranes of the cord than in the white matter. No part of the spinal cord, including the medulla, is entirely free from lesions, but the severest lesions tend to occur at levels corresponding to the groups of muscles most severely paralyzed. The meninges show more or less diffuse infiltration with round cells, the greatest accumulations of which are about the blood-vessels, where thick collars of cells often exist. The infiltration is within the adventitial coat, while the muscular coat and the intima remain intact, although the lumina of the vessels are often encroached on through compression. When the vessels are small the effect on the lumina, and hence on the permeability, are considerable. Meningeal cellular invasion is always interstitial and does not give rise to exudate on the surface of the cord or brain, and it is, moreover, made up almost exclusively of mononuclear cells.

The gray matter of the cord shows lesions of the anterior and posterior horns and the commissure, but the anterior horns are as a rule more severely and widely injured than the posterior horns. The chief lesions surround the vessels and consist of a cellular infiltration

and edema of the perivascular spaces, and sometimes of hemorrhages as well. When the nerve cells and ground substance are injured, as is frequently the case, foci of similar cells occur there, and the nerve cells show degeneration and necrosis. The extent of the lesions in the gray matter varies greatly. Sometimes minute foci of injury and sometimes complete degeneration of the anterior horns occur. The infiltration of the perivascular sheaths of the vessels is continuous with that of the pia-arachnoid. The white matter of the cord holds in respect to the frequency and severity of the affection an inferior position, and the lesions when present there consist of edema, perivascular cellular infiltration, hemorrhage and necrosis of tissue. The brain shows lesions that are, however, more sparse than in the spinal cord. They correspond with cellular infiltrations of the meninges similar to but less in amount than in the cord. The intervertebral ganglia regularly are the seat of a diffuse and nodular infiltration with lymphocytic cells, which collect between the nerve cells and about the nerve fibers, both of which may be the seat of degeneration or of necrosis.

The pathogenesis of the affection is explained by the nature and distribution of the lesions. It would appear that the virus becomes implanted on the leptomeninges, especially in the region of the spinal cord and medulla, where it sets up cellular infiltrative changes that are most marked in the perivascular lymph spaces of the arteries entering the nervous tissues. The vascular lesions constitute the primary causes of the lesions of the nervous tissue, the severity of which is determined by the particular vessels affected and the intensity of the involvement. The infiltrative lesions are confined to the perivascular lymph sheath and adventitia, but still other lesions must occur in the intima of the vessels from which the edema and hemorrhage arise. The central arteries entering the anterior median fissure and supplying the anterior gray matter of the cord invariably become affected, through which the preponderance of lesions of the anterior horns is accounted for. Since the arteries supplying the posterior gray matter are less important, the lesions in the posterior cornua are slighter. The degree, therefore, of affection is determined by the richness of the arterial blood supply, whence is explained the liability of the lumbar and cervical enlargements to severe lesions. Irregularity in the branching of the central artery probably explains the common variations observed in the involvement of the two lateral halves of the body. The brain is far less commonly the seat of lesions, but it is not spared. Paralysis of the cranial nerves, and especially of the facial nerve, follows on them, but lesions also occur in parts of the brain which do not respond by paralysis. The brain injuries, like those of the cord, depend on vascular lesions.

Hence it would appear that there are good grounds for believing that a considerable part of the paralyzes, especially those that are not permanent, are the effects of temporary vascular impediments. The impediments are all outside the lumina of the vessels, which are merely reduced in caliber through pressure. Thrombi do not occur. Some of the functional disturbances are possibly thus anemic in origin; others are probably caused by slight degenerations, and still others are undoubtedly caused by focal hemorrhages and edema. All these effects may possibly be recovered from: part by resolution of the cellular vascular infiltrate and reestablishment of the lumen; part by absorption of edema and

hemorrhage, and part by restoration of the mildly degenerated nerve cells. The severer degenerative and other lesions, through which actual necrosis is produced, do not become restored. On them depend the permanent paralyzes and deformity.

THE VIRUS

The virus causing epidemic poliomyelitis has been stated to be of very minute size. It is, so far as we can now judge, one of the most minute organisms known to cause disease. This conclusion follows from the fact that in aqueous suspension, such as is secured through preparing an emulsion of the spinal cord in distilled water, it passes with great readiness and little or no loss of potency through the pores of the densest and finest porcelain filters, namely, the so-called Chamberland filter. It passes with even greater ease through the somewhat less dense Berkefeld filter. It is extremely doubtful whether the virus has actually been seen. On staining film preparations of the filtrate with mordanting dyes, preparations are secured which under the highest powers of the microscope exhibit minute points, circular or slightly oval in form, which possibly, although not certainly, represent the stained parasite. When the filtrates are examined under the dark microscope, innumerable bright dancing points, devoid of definite size and form, and not truly motile, can be discerned. That these particles represent the micro-organism of poliomyelitis cannot be affirmed, since similar particles are present in filtrates obtained from nervous and other tissues which can be viewed also as consisting of simple protein matter.

The filtrates are highly potent. Quantities as small as one one-thousandth to one one-hundredth of a cubic centimeter suffice to cause paralysis in monkeys after the usual incubation period, when injected into the brain. The virus is highly resistant to external agencies and conditions. It withstands glycerination for weeks or months very much as the virus of vaccinia or rabies does. It withstands drying over caustic potash for weeks without any or marked reduction in potency, showing a greater degree of resistance than the virus of rabies. It retains its virulence apparently unimpaired for weeks, on being kept constantly frozen at minus 2 to 4 C. It also withstands for a long time temperature slightly above the freezing point of water, in the course of which the nervous tissue containing the virus undergoes autolysis, and it has been shown to survive the growth of ordinary mould. On the other hand, it is readily injured by heating, since temperature of 45 to 50 C. maintained for half an hour suffices to render the filtrate incapable of causing paralysis. It is also readily destroyed by 1 per cent. solution of hydrogen peroxid, and by such simple disinfectants as menthol.

That the virus is a living organism must be concluded from the fact that such minute quantities of it suffice to carry infection through an indefinite series of animals. We have propagated the virus now through twenty-five generations, representing twenty-five separate series of monkeys, and as many removes from the original human material supplying it, and the activity of the virus for the monkeys has increased rather than diminished in the course, and as the result of the successive transplantations. Whether the virus has been or is to be cultivated outside of the body is still an undecided question. We early secured certain indications which led us to hope that the virus multiplied in a medium of bouillon mixed with human serum. We have, however, not succeeded

in producing paralysis by the inoculation of one of these possible cultivations. On the other hand, original virus has been observed to retain its virulence for several weeks when kept in a similar bouillon at the temperature of the thermostat.

PROGNOSIS

At the outset of the experiments we estimated that less than one-half of the monkeys that became paralyzed would, if permitted, recover more or less completely from the paralysis. Since, however, our purpose was best served at the time by sacrificing the paralyzed animals immediately on the appearance of the paralysis, they were as a rule etherized. We now believe that the deduction was erroneous and that the fatalities would have been greater than we supposed, and probably as many as three-fourths of the paralyzed animals would have succumbed to the disease. At this early period, however, a number of paralyzed animals recovered, usually, however, incompletely, retaining residue of the paralysis similar to what is observed in the spontaneous human affection. The indications now are that the virus has altered qualitatively and so increased in potency in the later generations that recoveries are hardly to be looked for. The mortality at present approaches 100 per cent., with which figure there is happily nothing in the pathology of the human affection that is comparable. In view of certain experiments of a therapeutic character which are to be mentioned, the fact of the intense activity of the virus should be borne in mind. Undoubtedly examples of the virus will be discovered which will become modified in the reverse direction and lose rather than gain in activity. At one period, indeed, in the course of propagation of each of the two viruses which we originally secured there occurred what appeared to be a sharp decrease of virulence, a change indicated by feeble effects during several passages and the final loss of power of certain strains to transmit the infection. To the circumstance that we carried the virus forward in parallel series of inoculations is to be attributed the survival and increasing activity of the strains at present in use.

INOCULATION OF OTHER ANIMALS

Repeated attempts have been made to implant the virus on other animals, but without success.¹ The animals thus employed consisted of the available warm-blooded domestic animals of this country, and included guinea-pigs, rabbits, rats, mice, dogs, cats, sheep, cows; goats, pigs, chickens, pigeons and horse. The rabbits and guinea-pigs were inoculated directly with each of the two specimens of human virus, and additional rabbits and guinea-pigs and other animals with virus derived from monkeys. In contrast with these failures is the successful employment of several species of monkeys. The greater number employed were of the species *Macacus rhesus*, but all other species of old world monkeys seem equally susceptible. These included, beside *M. rhesus*, *M. Cyonomolgus* and *nemestrinus*, *Cercocebus fuliginosus*, *Cercopithecus callitrichus*, and *Papio babuin*. Of the new world monkeys we employed two species, one belonging to the genus *Cebus* and the other including *Capuchinus*. It chanced that the larger ring-tail proved susceptible and the smaller did not, so that a question arises whether the catarrhine are not more uniformly susceptible than the platarrhine species. No instance of

the spontaneous transfer of the virus from a paralyzed to a normal monkey arose, although many opportunities for contagion in the course of our many experiments occurred. This fact does not militate against the notion of contagion in respect to the spontaneous disease in man, for the reason that the monkey is obviously under ordinary conditions and because of the possession of adequate external means of defence an insusceptible species, although once these defences are surmounted it proves less able to resist the injurious effects of the virus than human beings.

MODES OF INFECTION

We have seen that the intracerebral mode of infection is not the only successful one, and that the virus may be introduced into the body by way of the peritoneal cavity, under circumstances leading to paralysis. It has been proved that the virus, when derived from an infected monkey, may also be introduced successfully by way, not only of the peritoneum, but also by means of the general blood, the subcutis, spinal canal, large nerves and certain mucous surfaces. Thus the introduction of large quantities of virus into the stomach or duodenum does not lead to paralysis unless the motions of these organs are for a time arrested by means of opium. When peristalsis has thus been prevented infection and paralysis result in some instances after this mode of introduction of the virus. However, it would appear that none of the avenues mentioned lead so uniformly to paralysis as does the direct or intracerebral mode of inoculation into the nervous tissues. There exists, however, one mucous surface that is more readily traversed by the virus than the other avenues, excepting the brain, and that is the mucosa of the nasopharynx. If this mucous membrane is lightly scarified in an etherized animal, and the virus rubbed into the scarifications by means of a swab, infection and paralysis usually, and with few exceptions, results with promptitude. Our experience is to the effect that the tracheal mucosa and the lungs do not afford an easy point of entrance of the virus into the body, at least under conditions in which gross lesions of the superficial tissues have not been previously produced.

The facts just given concerning the several possible portals of entry of the virus of poliomyelitis into the body under conditions leading to paralysis have significance with respect to the usual portal of entry of the poison in the spontaneous infection in man. We have been led by certain theoretical considerations to view the nasopharynx as the location in the body to be regarded with special suspicion as being the portal of entry of the virus. Some of these theoretical considerations may be mentioned. Our attention was arrested by the frequently observed fact that in point of distribution epidemic poliomyelitis resembles epidemic cerebrospinal meningitis, and that the two diseases, indeed, so often presented such close similarities in this respect that they had often been confounded with each other. The chief and striking difference between them related to the seasonal prevalence, which for epidemic poliomyelitis is midsummer and for epidemic cerebrospinal meningitis late winter or early spring. The two diseases, moreover, attack by preference infants and young children, although not sparing older children and adults, and in about the same ratio. In the majority of instances a single case appears in a family or home, but often two cases, and less often three or more cases appear. The relation between the group cases in a house or locality has in respect to both

1. Krause and Meinicke, in Germany, of all those engaged in the recent investigations, alone claim to have transferred the disease to rabbits.

diseases been made out only recently, through the discovery of the rôle of the intermediate carrier of the infection.

Now it is held that the *Diplococcus intracellularis* passes into the cerebrospinal membrane by way of the lymphatic connection existing between them and the nasopharyngeal mucous membrane. None of the lower animals, not even monkeys, are so susceptible to the pathogenic effects of the *Diplococcus intracellularis* that its inoculation into the nasal mucosa suffices to set up acute meningitis. We have already seen that the virus of poliomyelitis, which is so much more active, can be introduced successfully by direct inoculation into this membrane.

The considerations thus far given show the close agreement existing between the two diseases, epidemic meningitis and epidemic poliomyelitis, in respect to the part played by the nasopharyngeal mucous membrane. Still other considerations are these: It is difficult, if not impossible, to establish in human beings the fact that the diplococcus passes from the meninges by a reverse lymph current into the nasopharynx, and yet such a migration is not only highly probable, but would most readily and satisfactorily explain the persistent intracellularis infection of these mucous membranes, which is regularly present in epidemic cerebrospinal meningitis. The case is quite different in monkeys infected with *Diplococcus intracellularis* by injection of cultures into the lumbar spinal canal, in which the migration into the nasopharynx of the diplococcus contained in leukocytes, and free also, has been followed with the microscope. It may therefore be regarded as established that this mucous membrane serves both as the site of escape from and of entrance into the meninges of the *Diplococcus intracellularis* in man. The question arises: Does this membrane serve a similar double function in respect to the virus of poliomyelitis? That it may serve for its entrance into the body we have already seen, and the experiment is readily made to determine whether or not the virus is also excreted there. The excised mucosa of monkeys recently paralyzed and killed has only to be rubbed up with quartz sand, suspended in distilled water and pressed through a porcelain filter in order to secure a fluid free from bacteria and suitable for inoculation into the brain of healthy monkeys. By employing this method we have been able to produce paralysis, and thus to prove that the mucous membrane contains the virus. The virus in the mucous membrane is not derived from the blood contained within it. It is true that the blood does contain the virus, but in such minimal quantities that an amount of two cubic centimeters may fail to cause the infection, while as much as 20 has caused typical paralysis. Moreover, we have ascertained that the organs generally do not contain the virus in such amounts as readily to convey the infection. We have failed repeatedly to secure infection from the spleen, bone marrow, liver and different groups of lymphatic glands, and in several experiments failed to develop paralysis after injection of the salivary glands, although Levaditi has reported one such successful experiment among several failures. We have failed to produce paralysis by the injection of a suspension of the mesenteric lymph nodes taken from an animal that had become paralyzed as a result of an intrastomachic injection of the virus, while we have been successful in producing paralysis with the mesenteric lymph nodes secured from a human case of poliomyelitis. That the lymphatic

glands in the monkey are capable of retaining the virus in an active state is proved by the fact that after subcutaneous inoculation of an emulsion of the spinal cord derived from a paralyzed animal, the regional lymphatic glands (axillary and inguinal) proved infectious. Again, Römer and Leiner and Wiesner have in certain instances caused paralysis by injecting into the brain emulsions of the mesenteric and of the cervical lymphatic glands taken from monkeys which became paralyzed following an intra-cerebral inoculation of the virus. It appears, therefore, that the virus may be retained for a time by certain distant organs, and especially by the lymphatic glands, which it reaches through the general circulation; but these localizations give no indication of the point of entrance into the body of the virus. The virus has thus far not been found in the excreta, that is, in the feces and urine, nor in the intestinal mucosa or bile. Since the virus is filterable it is possible to demonstrate its presence in material highly contaminated with bacteria.

We are disposed to the view that the nasal mucosa serves not only as the portal of infection but also as the path of elimination of the virus into external nature, since such elimination must occur in order that the virus be maintained alive and transmissible. It is well known that direct connections exist between the meninges and the nasal mucosa by way of the lymphatics, which pass with the filaments of the olfactory nerve through the cribriform plate. We have already alluded to the fact that the virus first becomes implanted on the leptomeninges, and this primary location of the virus is what would be especially favored by the mode of entrance of the virus just mentioned. That the early participation of the leptomeninges does not occur without certain definite corresponding alterations taking place in the cerebrospinal fluid we have been able to demonstrate. It will be recalled from the cerebrospinal fluid obtained by lumbar puncture from cases of the human spontaneous disease at different periods after the onset of paralysis, have shown only slight qualitative abnormalities. These fluids, which are clear, but may be in excess, show merely a moderate increase of the lymphocytes normally present, and no other qualitative changes. Moreover, this fluid has been shown by repeated tests to be non-infectious, or at least not capable of setting up paralysis in monkeys, even when injected into the brain. In monkeys on the other hand, in which the spinal fluid can be investigated during the incubation period of the disease, as well as after the development of paralysis, it has been shown that the reaction of the meninges to the injection of the virus occurs quickly and that at the expiration of periods of twenty-four, forty-eight or seventy-two hours, the number of cells within the fluid has progressively increased, so as to give rise to a slight opalescence of the fluid which becomes subject also to spontaneous coagulation. The fluids contain an excess of protein, as may be shown by means of Noguetti's butyric acid test. This condition of increased cells and protein is of brief duration and is succeeded by one in which the fluid is clear and non-coagulable and the protein not increased, but only the lymphocytes are more numerous than normally. This is the state of the fluid in monkeys at a period concurring with the onset of paralysis, or appearing soon after, so that there is essential agreement between the two conditions. The spinal fluid taken from monkeys when clear and limpid, does not convey the infection and produce paralysis, but when

the fluid is taken at an earlier period, at the height of the opalescence, it is capable of transmitting the disease.

Finally, the question arises whether the virus of poliomyelitis can be directly implanted on the leptomeninges, which question can be answered in the affirmative. If an active virus is introduced by lumbar puncture into the meninges, infection and paralysis may be produced. Hence it would appear as though all the theoretical conditions required to establish the nasal and meningeal route as a direct one for infection in poliomyelitis had been supplied by experiment.

It remains to add that in course of the demonstration given by these experiments, two important subsidiary problems have been elucidated: First, the pathogenesis of the affection has been rendered clear and comprehensible, and next the changes in the spinal fluid induced by the infection have been brought clearly into view as constituting criteria on which, even in human cases, an early diagnosis of the disease, preceding the onset of any meningeal or paralytic symptoms, may come to be based. What is required merely is that those physicians having access to clinical cases should perform lumbar puncture early² when poliomyelitis is suspected, and during the prevalence of an epidemic on patients presenting a series of indefinite symptoms that precede as prodromata the onset of paralysis, or themselves comprise the group-symptoms that may define the so-called abortive form of the affection.

IMMUNITY

Experiments have been conducted to determine the kinds and degrees of immunity which are produced by the inoculation of the virus of poliomyelitis. Since the literature on epidemic poliomyelitis is silent on the subject of reinfection, it can be inferred that a second attack of the disease is rarely ever suffered by one individual. Two possible reasons can be assigned for this: The first and most probable is that one attack of this disease, as is the case with some other acute general infections, tends to afford an enduring immunity, and the other, that as epidemics have in the past occurred infrequently and reappeared after long intervals, the children once affected have passed beyond the susceptible age period at the time of the next epidemic.

We have available in monkeys which have recovered from an undoubted infection, attended by paralysis, an opportunity to decide the question whether an attack of poliomyelitis protects against subsequent infection. Thus far we have subjected a number of monkeys to reinoculation into the brain at periods varying from eight days to four or five months, after the paralysis first appeared, without succeeding in reinfecting any of these animals. They were not rendered perceptibly sick by the subsequent inoculation after the one originally producing paralysis, and in no instance was recrudescence of the paralysis produced. It is interesting to note that in point of severity the first attack varied between mere tremor of the head, a partial paralysis of one limb, and complete paralysis of legs and arms. The paralysis had in some instances nearly or completely disappeared, and in others it had become reduced, but still affected all the muscles of one or two limbs. These results indi-

cate what will probably be found to be true equally of human beings, that an undoubted attack of poliomyelitis, even when unaccompanied by definite paralysis, produces a state of refractoriness in reinoculation with active virus that endures for months and probably for years, if not throughout the life of the affected individual. On the other hand, our experiments, embracing now a large number of monkeys, establish that when the virus is introduced into the brain, practically all monkeys belonging to the generally susceptible species are subject to infection, although they do not invariably succumb to the first inoculation, but may require a second injection. However, it would still appear that rare individual monkeys are highly refractory to infection, and it has also been observed that an unsuccessful inoculation of the virus does not act as a protective, but leaves the unaffected animals either with their original degree of susceptibility unimpaired, or, what further experimentation will be needed to confirm, leaves the animals possibly somewhat more disposed to a subsequent infection.

This latter point of the failure of an unsuccessful intracerebral inoculation of the virus to increase resistance does not answer the question negatively, whether by suitable means it may not be possible to develop an active immunity independently of the production of even the most trifling symptoms that might be taken to indicate an attack of poliomyelitis. We have, indeed, been successful in establishing in a certain number of monkeys a state of active immunity through a single large subcutaneous injection of the crude or modified virus, as represented by the emulsions of the spinal cord taken from recently paralyzed monkeys, or by repeated injections of gradually increased amounts of the crude virus. This mode of producing active immunity has not, up to the present, been developed into a uniformly successful and safe method, since of the treated animals some do not develop a strong immunity and others develop paralysis as a result of the treatment. The direct immunizing effect has been produced also by means of a virus somewhat modified after a long immersion in glycerin, so that it may be regarded as probable that a qualitatively modified virus, changed through the action of chemical or physical agents, or modified by biological conditions within certain hosts, can be produced, and that this altered virus will be found more appropriate than the virus of full potency for purposes of active immunization. At present the experimental basis is entirely inadequate to justify the attempt to induce active immunity as a protective measure in human beings. Monkeys thus directly immunized resist successfully the injection of large doses of virus into the brain.

It has therefore been established that an undoubted and even high degree of immunity to infection with the virus of poliomyelitis is obtainable in animals, and probably equally in human beings. The question which next arises is this: As a result of this immunity, do the body fluids acquire new properties capable of experimental demonstration, on which the immunity probably depends? In answer it can be stated that human beings and monkeys who have passed through an attack of poliomyelitis come to contain in their blood certain neutralizing principles for the virus of poliomyelitis, and that these principles are readily demonstrable by animal tests for two or more years in human beings, and that they probably persist for as great a period in monkeys. Similar principles are absent from the normal serum.

2. The earliest cellular reaction in monkeys is not purely lymphocytic but includes polymorphonuclear leukocytes which may predominate for the first period of one or two days. The earliest reaction of the meninges in human beings also is attended with polymorphonuclear excess (Wlekman and Fulton.)

They are demonstrated by bringing into contact an active filtrate containing the virus with the serum of the blood derived from animals or human beings who have recovered from poliomyelitis, or from monkeys actively immunized directly to the virus, and incubating the mixture for a period at 37° C. and determining that after this treatment the virus is no longer able to set up paralysis on being injected into the brain of normal monkeys. Furthermore, it has been shown by Netter and Levaditi that the blood of a patient who had suffered an abortive attack of poliomyelitis contained such neutralizing principles.

A pressing question could now be approached, namely, whether the immunity principles contained within the serum suffice to neutralize the virus of poliomyelitis once it is present in the body. It could be assumed that the serum of animals, as of human beings that had recovered from paralysis, would contain the immunity principles in no high state of concentration. Effort was therefore made to reinforce the degree of immunity in these monkeys by subsequent inoculations of virus, and the therapeutic experiments defined were conducted in part with this reinforced serum, and in part with the serum of directly immunized monkeys, and such serum as could be obtained from human patients. It can now be stated that if the quantity of the virus injected into the brain be not in excess of a given dose the development of paralysis can in some cases be prevented by making several injections of the serum by lumbar puncture into the subarachnoid space, while in another number of animals the onset of paralysis is much delayed. In respect to the latter point it may be stated that the period of incubation in the control animals ranged from seven to eleven days, and in some of the animals treated with the human serum the onset of paralysis was delayed until the twenty-sixth or twenty-seventh day. Moreover, infection by the nasal mucosa can also and with greater certainty be prevented by the serum injections.

The manner of making the therapeutic injections was somewhat varied, but in general may be described as follows: An intracerebral injection of the virus having been made, after the expiration of a period not exceeding twenty-four hours, the subarachnoid injections of the serum were performed on three successive days, after which, an interval of three days having been allowed to elapse, three more daily injections of serum were given. We chose the subarachnoid method of injection rather than the intravenous mode, in order that the immunity principles might be brought into the most direct relationship with the virus, and particularly in view of our conception of the pathogenesis of poliomyelitis and of the primary site of localization of the virus in the leptomeninges. We believe that as good results could not be achieved by the intravenous injection of the serum, although the immunity principles could doubtless be brought to the nervous tissues by the circulating blood, for the reason that we know that these principles are not readily if at all secreted into the subarachnoid space. Hence they would not come into relationship with the seat of the active virus at a period preceding its active proliferation and extension throughout the nervous tissues. We think it also probable that had the serum injections been resumed after another interval of rest, the last vestiges of the virus in the tissues might have been destroyed in those animals in which the incubation period was much delayed, so that the ultimate appearance of paralysis might have been entirely prevented.

We have sought to ascertain whether animals protected from infection through the employment of mixtures of virus and immune sera, or as a result of treatment by subarachnoid injections of immune sera for therapeutic purposes, exhibited an unusual degree of resistance to subsequent intracerebral injections of active virus made at periods of several weeks to four or five months after the conclusion of the original experiments. The object of these tests was to ascertain whether a permanent augmentation of the natural resistance to infection had been accomplished by the introduction of the virus under these conditions of restraint into the body. We have found that no unusual degree of resistance to subsequent intracerebral injections of active virus has resulted, which fact we believe points to the validity of the following deductions: (1) A neutralized mixture of virus and immune serum does not lead to any degree of active immunization; (2) the therapeutic action of an immune serum is associated with restraint of multiplication of the virus such as would be required to establish any grade of active immunity; (3) a simple passive immunity is either not produced at all by the serum injections, or is of brief duration or small amount.

PRODUCTION OF A SERUM

The observations on immunity which have been presented early suggested that an effort be made to produce a corresponding active immunity in some of the lower animals that might possibly become the source of a therapeutic serum. This particular phase of our studies is being actively pursued at the present time. However, several facts have already been developed. It has, for instance, been found that the horse does not readily respond even to large injections of filtrates carrying the active virus with the development of immunity principles within the blood. It is true that our experiments are restricted for the present to a single horse, the blood serum of which, after many months of treatment, had no restraining effect on the virus either *in vitro* or within the body. The rabbit and chicken would seem not to yield such immunity principles. On the other hand we have secured indications that the sheep may react more favorably. It has been found that normal sheep serum possesses a definite although slight neutralizing power for the filtered virus when mixed directly with it, and that the injection of emulsions of the spinal cord and brain of recently paralyzed monkeys into the sheep augments this property of neutralization. What remains to be determined is the degree to which this augmentation can be carried, and whether a serum can be secured that will possess therapeutic value; but should the sheep fail in this respect, the search must be continued and be made to include still other species of animals, in the hope that one will be found in which the immunity response will be greater. There are serious objections to the use of monkeys as a source of a therapeutic serum, even were one of high potency capable of being prepared in those animals. The use of human serum, derived from persons who have passed through an attack of poliomyelitis, as a therapeutic agent, would be free of certain objections attached to the use of monkey serum, but it is not very probable that such an immune serum would be found to have sufficient strength or that it could be procured with sufficient readiness to make it available for practical application. Finally, the serum treatment of poliomyelitis must at the present time be regarded as strictly in the experimental state, and it can-

not be predicted how soon or whether ever at all such a form of specific treatment of the disease will be applicable to the spontaneous epidemic disease in human beings.

SUMMARY

It may be confidently stated that the experimental study of poliomyelitis has yielded a large number of important facts relating to the spontaneous disease in man. These facts include the discovery of the nature of the virus, of many of its properties, of certain important clinical and pathological peculiarities of the disease, of the phenomena of immunity, of a mode of spontaneous infection, while they have served to establish a basis on which to develop measures of prevention, and on which to build hopes for the working out of a specific method of treatment. Moreover, the advance which has now been accomplished will make it possible to determine with accuracy whether poliomyelitis is a single clinical and pathologic entity, or a generic name covering groups of symptoms and descriptive of the effects of certain lesions of the spinal cord and brain of which epidemic poliomyelitis is merely one, but the most important variety. It is not improbable that poliomyelitis, like meningitis, may be found to arise from several independent causes, and that epidemic poliomyelitis, like epidemic meningitis, may be distinguished among the varieties by being invariably the product of a specific micro-organism. We possess already evidence to the effect that certain of the lower animals, among them poultry, the dog, and possibly the horse, are subject to poliomyelitis, due apparently in each instance to a cause peculiar to the species affected.

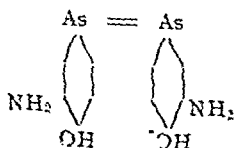
THE ARSENICAL TREATMENT OF SYPHILIS

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Much attention has recently been paid to the arsenic treatment of syphilis and particularly to the Ehrlich-Hata preparation known as "606", i. e., the dioxo-diamidoarsenobenzol dihydrochlorid, a single injection of a proper dose of which is reported to be destructive of the *Spirochæta pallida*. The recently recorded cases show a striking uniformity in the immediate curative effects in all of the spirilloses, or diseases of spirochetic origin.

It is believed that this arsenical preparation is as destructive of the spirochetes as quinin is of the plasmodia of malaria. The spirochetes disappear entirely from the local lesion and from the blood in from four to ten hours after the injection of the remedy and the disease appears to be entirely arrested in twenty-four hours. These seem astonishing statements but they are verified by a number of able observers as Ehrlich, Hata, Wechselsmann, Alt of Uchtspring, Schreiber of Magdeburg, Iversen of Russia and others.

The chemical composition of this drug as given by Dr. Bertheim, who manufactures it in the Royal Institute for Experimental Therapeutics at Frankfurt under the directorship of Prof. Ehrlich, is $C_{12}H_{10}O_2N_2As$ and is expressed by Ehrlich in the following formula:



This arseno-benzol-dihydrochlorid preparation is a yellowish crystalline substance not unlike iodoform in appearance and must be kept in hermetically sealed vials as the drug becomes very toxic when exposed to the air. For administration it must be handled with the greatest care and exact details in the technique must be carried out.

The dose is a single injection of from 3 to 7 grains, given either intravenously or into the gluteal or pectoral muscles.

It is not yet available to the profession for general use. In a letter which I received a few days ago from Dr. C. H. McKenna of Chicago, who was kind enough to go from Paris to Frankfurt at my request, he states that he was received and treated by Prof. Ehrlich with the greatest courtesy and all the matters concerning this preparation, the treatment and results, were placed at his disposal for observation. The details for the manufacture of the drug are not given to the public; in this Prof. Ehrlich has exercised a praiseworthy caution. Placing a drug that will be in such immediate demand all over the world, and used by men who do not exercise the precaution of reading and following out in detail the directions given for its preparation and administration, is a hazardous procedure, and failure in securing the best results obtainable for the patients through this treatment would follow. The longest period that patients have been under observation after this treatment is about eleven months. Prof. Ehrlich has reports on 7,000 patients treated. In this number there were six deaths: Ehrlich himself considers that only one might justly be attributed to the treatment. This drug has been used in the treatment of syphilis in all stages from the primary chancres to the deep specific lesions of the central nervous system. It seems to have the specific property of killing the spirochete in all its abodes in the tissue, i. e., of curing syphilis in its three stages—primary, secondary and tertiary. Its most prompt action is in: (1) the syphilids and mucous patches, (2) in the gummata and, (3) in the chancre; the latter, however, is sometimes very rapidly cured. The lymphatic adenopathies speedily disappear.

It does not and should not be expected to reproduce tissues that have been destroyed by the spirochete. It will not restore destroyed columns of the cord or perforations of the palate or septum nor any other destroyed tissue. It does not produce an immediate increase in the size of the lesion by edema and swelling that was so marked in the early treatment of tuberculous lesions with tuberculin. On the contrary there is infiltration and therefore pressure on the neighboring structures. The drug relieves the shooting pain, the girdle sensation and the crises of tabes almost as a hypodermic of morphin would; and it lessens the cephalalgia of the intracranial gummata.

One of the striking factors in favor of the claims of this treatment is that the most rapid effect is produced on the external or visible lesions. The cures appear to be permanent, as less than one-half dozen relapses have been recorded and most of these were easily traceable to deficient doses or to improper administration; but the patient promptly responded to a second injection. It will be noted that this is a far better result than is obtained in the average by quinin in ague or antitoxin in diphtheria and would lead us to hope that we have really another specific remedy. Regardless of what its permanent effect in definitely curing syphilis by a single dose

may be its immediate effect places it far beyond any medicament that has so far been used in the treatment of this disease and makes one feel that every sufferer should have the advantages it affords.

It has been announced that this drug will not be given to the profession for use for a number of months, a fact which forced us to try other preparations of arsenic. The one with which I have been most familiar is the sodium cacodylate which we have been using for seven years to allay the pain of metastatic, osseous carcinoma. For this purpose I have been administering it in doses of from 3 to 6 grains by mouth and have given from 1 to 2 grains in single doses daily hypodermically, also using it for the various other purposes for which arsenic is indicated. One of its striking therapeutic effects is the rapid dissolution of the deposits in fibrinous pericarditis in children, when it is administered in doses of from 1 to 3, or even more, grains daily. Its chemical formula is $(CH_3)_2 As O Na + 3H_2O$. It appears as a

which is keeping up the irritation. The adenopathies, except those with suppurating central foci, disappear in four or five days. The mucous patches repair in from twenty-four to forty-eight hours, the advancing ulcers of the palate and posterior wall of the pharynx clear up and heal as healthy granulating wounds in from three to six days and the perforating ulcers of the palate repair in their margins leaving the perforation in a healthy condition. I have not pressed it in the tertiary lesions but will not hesitate when such cases come under observation as the toxic limitations of the drug and the line of safety in its administration are known.

Photograph 1 is from a patient, aged 17, who became infected in a cold sore on the lip from a drinking cup. The examinations for spirochetes were made at the Columbus



Fig. 1.—A chancre on the lip before treatment. Syphilis from the common drinking cup.

white amorphous powder readily soluble in water. As a solution it can be injected into the muscle without causing much discomfort. It is prepared and carried by most of the wholesale druggists in ampullas containing three-fourths of a grain and is one of the safest of the arsenical preparations for administration.

When the system becomes saturated, the patient has the typical arsenical breath, with a sense of gastric distress and loss of appetite. I have been giving it in doses of from 1 to 2 grains hypodermically into the muscles and it has a most striking effect on the syphilids, mucous patches and primary chancre. From the latter the spirochetes disappear completely in forty-eight hours, the induration is markedly reduced in twenty-four and it becomes a soft, clean ulcer in seventy-two hours. From that time on it repairs with the same speed as an aseptic sore of mechanical origin would heal in the same tissue. In other words, the sodium cacodylate seems to destroy the specific micro-organism (the spirochete)



Fig. 2.—Patient shown in Figure 1, nine days after treatment of syphilis with arsenic preparation.

Medical Laboratory and slides were preserved; the spirochetes were numerous. The patient received two injections of $\frac{1}{2}$ grain each into the pectoral muscle, twenty-four hours apart. Forty-eight hours after the primary examination (at which time only a clean soft ulcer without induration remained), numerous slides were prepared for spirochetes, both at the Columbus Laboratory and at Mercy Hospital and all were negative. The injections were continued in $\frac{1}{2}$ grain doses for eight days, then from the eighth to the twelfth day in $\frac{3}{4}$ grain doses and permanently discontinued. The patient showed none of the physiologic effects of arsenic.

Photograph 2 shows the condition of the ulcer nine days after treatment was instituted as a small abraded surface without induration and no larger than a grain of flax-seed and thirteen days from the initial treatment the ulcer was completely healed with no evidence of the disease remaining.

This case was demonstrated in all its stages to the visiting physicians at Mercy Hospital.

In a child nine months old with a papillary syphilid, a $\frac{1}{4}$ grain dose was administered into the pectoral muscle. The rash entirely disappeared in forty-eight hours. In a patient with active gastric crises, two 2-grain doses were administered into the pectoral muscle, twenty-four hours apart, followed by entire cessation of pain, while in his innumerable former attacks the pain lasted three weeks.

A perforating ulcer of the palate in the service of a colleague continued to advance in its destruction under daily injections of $\frac{1}{4}$ grain doses of mercuric bichlorid. Two injections of three-fourths of a grain each, of cacodylate of sodium, caused the gray surface to disappear and the margin of the ulcer to heal over in six days.

These incomplete reports are published merely as suggestions to practitioners who are willing to try a remedy as safe as sodium cacodylate and who have numerous cases coming under their observation, as the only syphilitic cases I encounter are those presenting surgical lesions.

I would further suggest that the primary dose should be from 2 to 4 grains, depending on the size and strength of the patient and should not be repeated within three or four days unless there are special indications for it.

I have never seen such effects produced by any form of treatment.

I have not given it by the intravenous method but I will so use it in a more dilute form, in the same size doses. Prof. Ehrlich has been kind enough to send me, through Dr. McKenna, twenty-five doses of "606" which are due in Chicago in a few days and which I shall use in control cases with sodium cacodylate.

100 State Street.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1910," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(Continued from page 666)

GUAIACODEINE.—Codeine - Ortho - Guaiacol - Sulphonate. Guaiacodeine is Codeine - Ortho - Guaiacol - Sulphonate $C_{15}H_{21}NO_5 \cdot C_6H_3(OH)(OCH_3)(HSO_3) \cdot 1:2:6 = C_{21}H_{25}O_6NS$, the neutral codeine salt of guaiacol sulphonic acid.

Guaiacodeine is produced by the double decomposition of a soluble salt of codeine with the potassium or barium salts of ortho-guaiacol-sulphonic acid taken in molecular quantities.

It is a white crystalline powder. Soluble in 90 parts of water, 450 parts of alcohol and 30 parts of methyl alcohol, insoluble in ether; very slightly soluble in chloroform. Very soluble in hot water.

A drop of solution of ferric chlorid added to a solution of the salt in water or alcohol produces a deep blue color, indicating the presence of ortho-guaiacol-sulphonic acid.

The salt melts between $163^\circ C.$ and $165^\circ C.$ (323.4 and $327.20^\circ F.$) to a white liquid. 0.1 Gm. dissolves in 10 Cc. concentrated sulphuric acid without color.

Theoretically, the salt contains 50.44 per cent. anhydrous codein, or 62.20 U. S. P. codeine (containing 1 molecule of water of crystallization) and 49.56 per cent. ortho-guaiacol-sulphonic acid.

Ammonia and alkalies precipitate from a concentrated solution of the salt the alkaloid, codeine, which should respond to the tests of the U. S. P. for that alkaloid.

Actions and Uses.—Those of Codeine. Since the proportion of guaiacol is small it cannot well be used to secure the action of this agent.

Manufactured by the New York Quinine and Chemical Works, New York.

U. S. patent No. 432,233. Not trademarked.

SOPHOL.—Sophol is a compound of silver and methylen-nucleinic acid, the silver being in organic ("masked") form.

It is prepared by conversion of insoluble silver compounds of methylen-nucleinic acid into soluble silver compounds by treatment with neutral salts, such as chloride of sodium. Sophol is a yellowish powder, having a metallic taste and claimed to contain silver, equivalent to not less than 20 per cent. metallic silver. Sophol is readily soluble in water, the aqueous solution having a faint alkaline reaction; it does not give a precipitate on the addition of dilute solution of sodium hydroxide or of sodium chloride; it is insoluble in ether and alcohol.

If 0.3 Gm. sophol is heated in a test-tube decomposition occurs with the development of brownish-red pungent vapors. If the ash is treated with dilute nitric acid, the solution filtered, a white cheesy precipitate is formed on addition of hydrochloric acid, which dissolves in ammonia water.

If 0.5 Gm. sophol is boiled with 5 Cc. of sodium hydroxide solution, the latter assumes a black color with the development of a formaldehyde odor.

If 0.1 Gm. sophol is heated with 3 Cc. nitric acid, a dirty yellow precipitate is formed, disappearing on addition of an excess of ammonia water with the formation of an orange colored solution.

A solution of 0.5 Gm. sophol in 10 Cc. water should have a faintly alkaline reaction and should not at once become turbid on the addition of sodium chloride solution.

If 1.0 Gm. sophol is shaken with 10 Cc. of alcohol and filtered, the filtrate should not be changed on addition of hydrochloric acid.

Actions and Uses.—It is said to act as a germicide and to be free from irritating effects in the solutions ordinarily employed.

It is said to be especially useful for the prevention and treatment of ophthalmia neonatorum and may be employed in other eye affections and for the general indications of the silver salts.

Dosage.—Sophol may be applied in from 2 to 5 per cent. solutions.

Manufactured by Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld, Germany (Farbenfabriken of Elberfeld Co., New York). U. S. patent No. 852,545. U. S. trademark No. 62,900.

PHARMACEUTICAL PREPARATIONS ACCEPTED FOR N. N. R.

The following dosage forms of accepted proprietary articles have been accepted for N. N. R.:

Adrin Inhalant Comp.—Epinephrine Inhalant Comp., Mulford.

—Each 100 Cc. contains epinephrine (as hydrochloride), 0.1 Gm. (7/16 of a grain in a fluidounce), camphor, 0.3 Gm. (1 1/4 grains in a fluidounce), menthol, 0.22 Gm. (1 grain in a fluidounce), thymol, 0.043 Gm. (1/5 of a grain in a fluidounce), oil of eucalyptus, 0.22 Gm. (1 minim in a fluidounce), and hydrastine, 0.0053 Gm. (1/40 of a grain in a fluidounce), oil of wintergreen, 0.99 (4.5 minims in a fluidounce). The solvent is a mixture of castor and cotton seed oils, together with 10 per cent. absolute alcohol by volume.

Adrin Troches.—Troches of Epinephrine—Mulford—each troche contains epinephrine, 0.000093 Gm. (1/700 grain), menthol, 0.0013 Gm. (1/50 grain), benzoic acid, 0.0027 Gm. (1/25 grain), oil of gaultheria, 0.0034 Gm. (1/20 grain), and eucalyptol, 0.0013 Gm. (1/50 grain). The base is sugar with a small amount powdered acacia.

Frivable Tablets Protan. 2 1/2 grains.—Each tablet contains protan, 0.16 Gm. (2 1/4 grains).

Frivable Tablets, Protan. 5 grains.—Each tablet contains protan, 0.32 Gm. (5 grains).

Frivable Tablets Protan. 7 1/2 grains.—Each tablet contains protan, 0.48 Gm. (7 1/2 grains).

ARTICLES ACCEPTED FOR N. N. R. APPENDIX

Reinschild Chemical Co., New York.

Extractum Chinæ Nanning.—A liquid extract of red cinchona said to contain cinchona alkaloids 5 per cent., cinchona tannins 7 1/2-10 per cent., glycerine 30 per cent., water 55-57 1/2 per cent.

Dose.—1 to 1.25 Gm. (15 to 20 minims) three times a day.

(To be continued)

Therapeutics

VACCINE THERAPY

Although every month, almost, changes the status of treatment with vaccines, and although methods of preparation and the strength of the solutions injected are almost as frequently modified, still one should keep up with the times and know the exact scientific belief in regard to the value and utility of vaccinations. Hence it is with pleasure that one reads the conservative, terse, and scientific article of Dr. Wilder Tileston, of New Haven (*Boston Med. and Surg. Jour.*, March 24, 1910).

Immunity is a variable condition, varying not only with the individual, but with the bacterium. Natural immunity occurs for a shorter or greater length of time after a person has had an infection. Artificial immunity to a given germ is caused in two ways: first, by inoculation with non-fatal doses of this bacterium, "active immunization;" second, by the inoculation of an antiserum, a serum which develops in the blood of a man or animal who has become more or less tolerant to a given germ. Injections of this serum into a subject susceptible to the germ, causing him to be more or less immune, is called "passive immunization." Tileston says, "There is a wide difference between the use of the various anti-sera and the injection of bacterial vaccines; the former are chiefly employed for their direct action on the bacteria or their toxins, the latter to stimulate the formation of protective bodies.

"These latter substances, or antibodies as they are often called, are found in the blood serum and act in various ways; the bacteriolysins destroy the bacteria, the antitoxins neutralize the bacterial poisons, the agglutinins bring about a clumping of the organisms, and, last but not least, the opsonins act on the bacteria in such a way that they can be taken in by the polynuclear leucocytes, a process known as phagocytosis."

There is always a certain amount of opsonin, the stimulant to polymorphonuclear activity, in the blood serum. Probably there are various kinds of opsonins to aid in the fight against the varying kinds of bacteria, and Wright has shown by laboratory methods that the amount of opsonin varies at different times, and especially varies during the progress of an infection. This is termed the opsonic index. This opsonic index may be increased by well-timed inoculations with the germ that is causing the disease. Scientifically the amount of the dose and the right time to administer it can only be determined by a prolonged laboratory examination of the patient's blood serum. This process, however, is too tedious, and is so easily subject to error, that it is not practical in general medicine. There can be no question that the inoculation of too large doses cause harm. This has been thoroughly proved in the use of tuberculin. On the other hand, Wright has shown that too small doses are of no value in raising the opsonic index. The clinical deduction is to begin with very small doses and carefully watch the fever and prostration reaction. If there is fever to amount to anything and much prostration, the dose was too large; if there is no indication of action from the injection, the dose was too small.

Pasteur showed in 1880 that chicken cholera could be prevented by vaccination of fowls with this organism, and later that this principle would apply to infections of other animals. In 1894 Pasteur and Haffkine demonstrated that human beings could be inoculated against cholera and become immune for some time. Over 100,000 persons were inoculated against cholera in

India. The number of inoculated persons attacked by the disease was one-tenth that of those who were not so inoculated, but it was found that if the disease did attack an inoculated individual the course of the disease was just as severe as in the non-inoculated. The protection against cholera, then, was positively demonstrated. It has also been shown that inoculations against the bubonic plague has caused the mortality to be ten times less than in the non-inoculated. The protective influence of these injections develops in twenty-four hours, and immunity has been found to last several years.

Both in England and Germany protective inoculations against typhoid fever have been demonstrated to be of value. The protection in some instances has been found to last four years. For several weeks there occurs what has been termed the negative phase of the protection during which period the individual is more susceptible to typhoid infection; therefore if individuals are to be exposed to typhoid fever or must go to typhoid regions or where they are likely to become infected with typhoid, a protective injection should be given a month before. Individuals who have contracted typhoid fever after a protective injection of several weeks before have had the disease very mildly and the mortality is much diminished. As Tileston says, it seems proved that soldiers going to regions of poor sanitation should receive protective injections against typhoid. Also, nurses and ward tenders should be protected against typhoid.

Shiga believes that protective inoculations against bacillary dysentery do not prevent the disease but reduce the mortality when the disease occurs.

Some investigators believe that vaccination against secondary infections after operations under conditions, or in regions of the body in which infection will almost surely occur, is advisable. Such protective injections have been made with the *Staphylococcus aureus* and *Streptococcus*, and with the *Bacillus coli* if the operation was on the alimentary tract. It is still a question whether such injections are advisable.

In local infections without general symptoms and with the localized infection or suppuration walled off from the rest of the body by the protective powers of the blood and tissues, but not tending to heal or to be absorbed, injections to increase the opsonic power of the blood have proved of the greatest value. The protective exudate around these localized infections, as stated by Tileston, "become poor in opsonins, owing to the absorption of these substances by the bacteria; phagocytosis is at a standstill and the bacteria are free to multiply. Add to this, in the case of abscesses the tryptic substances set free by the disintegrating leucocytes, with their deleterious action on the tissues, and we have a combination of conditions unfavorable to cure." We hasten cure by evacuating the pus and draining the region, and by stimulating the constructive powers of the body by giving stimulating drugs and pushing nutrition.

A still greater aid to hasten cure seems to be a vaccination with a culture grown from the particular germ of infection; in other words an autogenous vaccination. While so-called stock vaccinations, vaccination with stock cultures of the type of germ of the infection are of some value, the various strains, especially of a pus producing germ, vary so much, and, evidently, vary so much in the kind of opsonins that is needed to eradicate them, that it has been found that vaccination with cultures from the germ that is infecting the individual is of much greater value. Such vaccinations cause increased hyperemia around the localized disease and the increased cir-

culuation thus caused is another aid in eradicating the infection. This is the reason that the Bier hyperemic treatment of localized inflammation and infection becomes of value. In other words, the opsonins are increased and the phagocytosis more active and the eradication of the infection goes on more rapidly, if the circulation in the diseased region is stimulated. These truths are especially demonstrable in lupus where tuberculin tends to cure the ulcerative type, but when the lupus is of the dry, scaly variety it is necessary for success to combine with the tuberculin injections the use of the x-ray to cause local hyperemia.

This vaccination treatment to aid the production of necessary opsonins in the blood will, when generally adopted, make repeated and recurrent furunculosis and carbuncles rapidly amenable to cure. Slight incisions to evacuate the pus and dead tissue are necessary, but as Tileston says, extensive surgical measures will be unnecessary, if the patient is vaccinated with an autogenous vaccine.

Vaccinations in pustulent acne are rather unsatisfactory. The same is true of erysipelas.

Septic infections should certainly be vaccinated with stock vaccine and then as soon as an autogenous vaccine can be developed it should be used. The pneumococcus vaccine seems to be of most value when the pneumococcus has attacked other parts of the body than the lung, as in pneumococcic empyema or in a pneumococcic joint inflammation.

It seems now to have been sufficiently demonstrated that gonococcus vaccine is very valuable when the gonococcus has invaded joints, and especially valuable where the inflammation has been prolonged and become almost chronic. In acute infections it is of much less value. As supposable from what is known of the lack of protection or immunity after one attack of gonorrhea, the immunity from injections also does not last long. In gonorrheal urethritis, acute and chronic, in gonorrheal prostatitis and epididymitis vaccination has not been shown to be of much value. In gonorrheal vulvovaginitis of children Tileston thinks this vaccine aids recovery more than most other treatments, but still is not very satisfactory.

A number of colon bacillus infections, especially when this germ has infected the pelvis of the kidney and the bladder, have seemed to have been benefited by vaccination with this germ.

The value of tuberculin in tuberculosis, in properly selected cases, seems to be now unquestionable. Its curative value is demonstrated in tubercular inflammations in the eye, in the larynx, and in many instances in the lungs. It is yet to be demonstrated that it should always be used in tuberculosis of the lungs. There is no question that it should be exceedingly carefully used in all early stages of tuberculosis, especially in tuberculosis of the lungs. It is very pleasing to note that in tuberculous lymph nodes, especially of the neck, tuberculin injections are shown to be exceedingly valuable as preventing the necessity of severe surgical procedures and the production of very unsightly scars to last the rest of the individual's life, and to prevent the removal of the chains of glands, which, when removed, means the removal of so many guards against entrance of germs to more susceptible structures, especially the lungs. If a tuberculous gland has become an abscess, the pus must of course be evacuated, through a small incision or even aspirated, and the tuberculin treatment begun. If there is caseation, cheesy masses must be removed surgically, but it would seem unjustifiable from the records to do gross

surgery on the neck until tuberculin treatment had been proved not to cause resolution of the enlarged glands.

A tuberculous joint and tuberculous structures in the region of joints should be placed at rest, the patient given the benefit of fresh air, and tuberculin injections used, and many times operation will be unnecessary.

It has not yet been shown that tuberculin can be depended on positively to cure a tuberculous kidney, hence if it has been shown that one kidney is perfectly healthy, the diseased kidney should be removed; but if both kidneys are affected with tuberculosis, or if the other kidney is found not to be perfect in its function, tuberculin injections still offer a possibility of recovery.

If tuberculosis has generalized, in an adult, in the intestines, tuberculin is really of value. On the other hand, if the disease of a tuberculous patient, under proper treatment, seems to be at a standstill, small injections of tuberculin often stimulate the ability to combat the disease and cause the lesions to heal. It seems from the results of some investigators that infantile tuberculosis may be healed by tuberculin injections.

As has been previously stated in this department, tuberculin injections should not be given without some experience and a great deal of study of the subject. Therefore, it is not the object of this abstract to discuss either the method or the dosage of tuberculin, but to show how far the success of the treatment has advanced.

A vaccine has been prepared from a bacillus supposed to be the cause of whooping-cough, and some investigators have thought they obtained benefit from such injections. The same is true of pyorrhea alveolaris; but these are still subjects for investigation.

Vaccination in pneumonia has given in some instances a better prognosis and a diminished mortality, and sometimes seems to hasten the crisis. The best results are doubtless obtained from an autogenous vaccine.

Vaccines during the course of typhoid fever seem to be of little if any value.

Tileston quotes the following doses for vaccines:

From 100 to 1,000 millions	staphylococci.
From 5 to 200 millions	streptococci.
From 10 to 200 millions	pneumococci.
From 5 to 500 millions	gonococci.
From 10 to 200 millions	colon bacilli.
From 1-10,000 to 1-500 mgm.	tuberculin T. R.

A marked change for the worse one or two days after injection shows that a dose was too large and should be reduced. A temporary improvement soon followed by a relapse shows need for a larger dose. Naturally, debilitated persons and young children should receive smaller doses than the stronger and adults. Children, however, tolerate tuberculin pretty well. The frequency of the dose depends largely on the reaction, generally acute infections requiring smaller doses at short intervals, and chronic conditions larger doses at longer intervals, from four days to two weeks. The beginning dose should generally be quite small and then the dose rapidly or slowly increased, depending on the reaction. Tileston says "for general infections the doses are smaller than the above; of the streptococcus 5 to 25; of the pneumococcus 20 to 50; of the gonococcus 5 to 100; and of the colon bacillus 10 to 50 millions." He well decries the use of mixtures of various bacteria hoping that some particular germ of this mixture will fight some particular germ in the body. This is much like the old "shot-gun prescriptions." It certainly seems inadvisable to inject a germ into a patient to help him fight against something that he has not got.

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[For other information see second page following reading matter]

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HABITAT OF TYPHOID BACILLI IN CARRIERS

Although the recognition of the importance of "carriers" in the transmission of infectious diseases was surprisingly and seriously tardy, yet, now that this source of infection has come to be appreciated, the advance in our knowledge of the subject has been rapid. We have learned that not only are diphtheria and typhoid frequently spread in this way by apparently healthy individuals, but that meningococcus infections, and probably several other diseases, are perpetuated in endemic or epidemic form by carriers who either may have had the disease and recovered, or are hosts of an organism pathogenic to others but to which they themselves are immune. It is in connection with typhoid and paratyphoid that infection by bacillus-carriers has been especially considered within the last few years, and with these diseases it has been believed that the habitat of the infecting organisms is chiefly the gall-bladder, and their avenue of escape the bowels. It has also been recognized that in some cases the bacilli are discharged in the urine for many years after convalescence from typhoid, and in these cases the place in which the bacilli are multiplying and from which they are discharged into the urine is often a problem. In some instances a definite cystitis, pyelitis or nephritis explains the persistence of the organisms, but in other cases there is no evidence of such lesions and the administration of urinary antiseptics may fail to remove the bacilli from the urine.

An explanation of these cases has been advanced by Marchildon,¹ who has found, in two fatal cases of typhoid, infection of the seminal vesicles and prostate. In view of the known tendency of infections of these organs to assume a chronic character and to discharge the causative organisms in the urine, there is reason to suspect that typhoid convalescents may harbor typhoid bacilli in this way; this should be especially suspected and investigated in patients with long-continued bacilluria in whom the micro-organisms disappear under treatment and then reappear at a later date.

Support to this suggestion of Marchildon's is furnished by comparative pathology through the recent investigations of Huet.² It seems that it has been frequently observed that male animals used for breeding purposes have transmitted to the females diseases from which the males had long since recovered. This has been reported several times with the influenza of horses, which is of particular interest since this disease, like typhoid in man, is not ordinarily localized in the generative organs. Huet examined the seminal vesicles of domestic animals, some of which animals were normal, while some had been infected experimentally with different organisms at varying periods of time before death, and found that frequently pathogenic bacteria can be found in the vesicles of perfectly healthy animals, while animals dying of experimental infections usually show seminal infection. Occasionally, in animals which had recovered from the infection, the germs could be demonstrated in the contents of the seminal vesicles even when the other viscera were quite sterile. From these several observations it is highly probable that typhoid bacilli frequently enter the contents of the seminal vesicles and prostate during typhoid fever, and that they may occasionally set up a chronic infection which can become a source of typhoid bacilluria of grave sanitary danger. Such localization of typhoid bacilli in the male generative organs can scarcely be a common cause of contagion, however, since about four-fifths of all known bacillus-carriers have been women, according to the review of Simonds;³ nevertheless it is well that this source of danger has been pointed out, in order that it may not be overlooked in the search for typhoid carriers.

STUDIES IN ANAPHYLAXIS

The study of the phenomena of anaphylaxis has received considerable attention from investigators during the past year, and though sufficient time has not elapsed for the confirmation of all conclusions reached, much progress has been made in the knowledge of the subject. The later experiments and studies of Anderson and Frost⁴ on the antibody concerned in the production of the phenomena of anaphylaxis lead them to conclude that this substance is quantitatively neutralized by the specific antigen; that it largely disappears from the serum of guinea-pigs during anaphylactic shock, but can be demonstrated in increased quantities in the serum of immune animals some time after recovery from such shock, and that it can be transferred to normal animals in such a way as to sensitize them against the antigen. To the antibody they give the name of "allergin," which they hope will be adopted as the

2. Huet, R. H. G.: Samenbläschen als Virusträger, *Cent. f. Bakt., Orig.*, 1910, III, 477.

3. Simonds, J. P.: Typhoid Bacilli Carriers and Their Relation to Public Health, *Am. Jour. Med. Sc.*, 1910, cxi, 247.

4. Bull. 64, Hyg. Lab. U. S. P. H. and M.-H. S., June, 1910. This is the fifth bulletin of the Hygienic Laboratory on anaphylaxis.

1. Marchildon, J. W.: Typhoid Spermatocystitis and Prostatitis, and Their Relation to Chronic Typhoid Bacilluria, *Amer. Jour. Med. Sc.*, 1910, cxi, 74.

regular designation of this substance. They summarize their views on the whole subject of anaphylaxis as follows:

Anaphylaxis is a step toward immunity, which is conceived as an increased capacity of the organism for safely and rapidly eliminating a specific antigen protein. It is remarkable among immunity reactions chiefly in the fact that (in the guinea-pig especially) the stage of hypersusceptibility is strikingly constant, well-defined and of long duration.

Immunity is a state of relative insusceptibility, characterized by an increase in the amount of free anaphylactic antibody. Whether the insusceptibility of an immune guinea-pig is due to this excess of free anaphylactic antibody, to the formation of another free antibody, or to specific changes in the somatic cells is an open question.

Hypersusceptibility to a foreign protein consists in an increase in the normal power of assimilating this protein, especially an increase in the rapidity of the reaction. This is due to the formation of a specific antibody (or antibodies) demonstrable in somatic tissues (smooth muscle) and in the serum of sensitive guinea-pigs. The action of this antibody on its antigen is quantitative and is probably primarily proteolytic.

Anaphylactic shock is due to disturbance of metabolic activities of vital cells rather than to the specific (permanent) intoxication of cells.

Antianaphylaxis is a state of absolute insusceptibility, due to saturation of the specific combining receptors. It is a temporary condition and passes gradually into the condition of relative insusceptibility known as immunity proper.

The interest in anaphylaxis lies in its relation to immunity. In the present development and understanding of the subject it has not been proved that effective practical immunity to particular diseases can be produced in this way without causing more or less serious damage to the host in other directions. The principle is tremendously suggestive, however, and may lead to the most important results. It points to possible valuable discoveries in the treatment of tumors, to a better understanding of the phenomena of asthma, and to the fact that the action of tuberculin involves the principle of anaphylaxis.

THE LESSON OF POLIOMYELITIS

The increasing prevalence of anterior poliomyelitis has made it one of our most important diseases. On account of its insidious nature and its distressing—often permanently disabling—sequelæ, blighting, as it does, the lives of the young, it has especially appealed to human sympathy and has stimulated efforts along scientific lines to solve its difficult problems. No more forceful demonstration of the modern method of studying disease has been afforded than is found in the instance of

epidemic poliomyelitis. Clinicians have made an intensive, systematic study of the disease and its epidemiology in the numerous localities in which it has appeared; but a still greater study is that which has taken place in the laboratories.

While it is true that some of the more important features have not yet been worked out—the causative organism, the question of immunity and a prophylactic or curative serum or vaccine—yet the laboratory study of the disease has progressed with such sure, swift steps that the early attainment of fairly complete knowledge of the disease is promising.

Most important among the studies have been those of Flexner and Lewis and their co-workers. The short notes published from time to time in *THE JOURNAL*, detailing the steps in the progress made in their experimental studies, and the final fuller paper of Flexner in this issue, giving a complete statement of the findings thus far made, the conclusions that may be drawn from them and outlining the requirements of the future study of the affection, constitute a striking record of results to be attained by persistent, systematic investigation in well equipped laboratories with every facility at command. This work has determined the pathogenesis, though not identifying the causative organism; has indicated the possibility of early diagnosis by examination of the spinal fluid, the probability of the establishment of an active immunity by injections of the attenuated virus; has established the presence of neutralizing principles in the blood of human beings as well as in that of monkeys following an attack of the disease, and has given some promise of the production of an immunizing serum in certain of the lower animals. All of which points to the early final solution of the problem.

It also is another instance of the absolute justification of animal experimentation in the study of the diseases of human beings.

Current Comment

NATIONAL CONSERVATION CONGRESS AND A DEPARTMENT OF HEALTH

The National Conservation Congress, recently in session in St. Paul, adopted a platform setting forth the views of the delegates as to the duty of the federal and state governments in conserving the natural and vital resources of the nation. One of the planks, unanimously adopted by the committee on resolutions and later by the convention itself, endorsed in no uncertain terms the establishment of a department of health. This plank read: "We also recommend that in order to make better provision for preserving the health of the nation a department of public health be established by the national government." This declaration was adopted in spite of a large amount of carefully stimulated (and simulated) opposition. The plank was introduced before the com-

mittee on resolutions by a delegate from Pennsylvania. As soon as it was known that there was likelihood of its adoption telegrams from all over the country began to pour in on the members of the committee on resolutions, requesting, urging and demanding that no action be taken on this subject. On Thursday morning, when the delegates assembled in the auditorium, there was found on each seat a marked copy of the *Pioneer Press* containing a full length, two column "appeal" (otherwise known as advertising-matter) from the National League for Medical Freedom, reiterating previously made statements regarding "political doctors," "medical trust," "interference with liberty" and other stock bugbears. But, as a reporter for the *Pioneer Press* said, "the delegates smiled." The men composing the convention, who had been sent to St. Paul to represent the interests of the people and not the people of the interests, who had been able to detect the cloven hoof of monopoly under the specious plea for "state rights" which had been made in the opening days of the convention, were not slow to understand who and what were the influences back of the objections to governmental action for the saving of life. "The delegates smiled" when they received the telegrams, when they adopted the resolution of the committee and when the unanimous vote of the convention approved the platform. It was the sound judgment and common sense of the average American citizen which led the delegates to realize that health and life are important and that the only men who oppose any means by which life can be saved are those who have a selfish and mercenary interest in perpetuating present conditions.

THE SEROTHERAPY OF ASIATIC CHOLERA

-As is well known, the serotherapy of cholera has thus far not been markedly successful. In the Russian epidemic of 1908-9 three kinds of antiendotoxic and two of antitoxic serum were used. Stühlern¹ ascribes greater potency to the former, particularly when administered in large quantities by the combined intravenous and subcutaneous method supplemented with copious saline infusion. It must be admitted that even the serum giving the best results (Schurupow's) did not lower the mortality rate below 30 per cent. One of the recent reports on an anticholera serum is that by Salimbeni,² who conducted his experiments, for so they must properly be called, in St. Petersburg during the serious outbreak in that city in the summer and autumn of 1908. The method used was that proposed as long ago as 1896 by Roux, Metchnikoff and Salimbeni himself and recently described in detail by the latter writer.³ The serum used in St. Petersburg was obtained from two horses "strongly immunized against the soluble cholera toxin," and 0.025 c.c. is said to have neutralized *in vitro* in 10 minutes twice the minimum lethal dose of cholera toxin for a guinea-pig of 250 grams. The article cited deals with only 42 cases, so that very general conclusions are hardly warranted. In this number, the mor-

talidity rate was about 24 per cent. The protocols of the individual cases indicate that no harm resulted from the serum injection (50 to 150 c.c.), and that in some cases benefit may have been produced. However, even under the most favorable interpretation, the curative power of the anticholera serum used in these observations does not seem very high.

SANITARY WORK IN BRAZIL: GOOD HEALTH A COMMERCIAL ASSET

Vice-Consul-General Slechta, of Rio de Janeiro, reports regarding the work of Dr. Oswald Cruz, to whose transformation of Rio de Janeiro from one of the most unhealthful to one of the most healthful of cities several references have appeared in *THE JOURNAL*. Dr. Cruz is now in the Amazon Valley carrying on a campaign against yellow fever, malaria and other diseases which have prevented the extension of commerce and industry in that region. The first work undertaken was in connection with the railroad being built around the falls of the Madeira and Mamore rivers, 500 miles south of the export rubber market of Manaus. The American contractors who are constructing this road have encountered great difficulties owing to yellow fever, malaria, beriberi and other diseases and have finally entered into a contract with Dr. Cruz to direct the work of sanitation along the right of way of the railroad and to stamp out diseases so far as possible in order to permit the completion of the railroad. It is also planned to undertake the suppression of yellow fever at the port of Para at the mouth of the Amazon, as well as at Manaus. The prevalence of yellow fever and malaria in the Amazon Valley has been one of the chief handicaps in the extension of trade and commerce and especially in the development of the rubber business. It is a sad commentary on human nature but an increasingly apparent fact that good health and the suppression of disease are attracting far greater attention now because their bearing on commerce and business is becoming evident. So long as it was merely a question of saving human lives the public remained apathetic. Now that good health and hygienic conditions are becoming recognized as business assets, we may look for increased interest and activity in the prevention of disease.

"VIVISECTION" NO MORE PAINFUL THAN TAKING CASTOR OIL

The statement has recently appeared in a number of newspapers that the Bureau of Animal Industry at Washington had entered into arrangements with the district commissioners of Washington, whereby the commissioners were to turn over to the bureau for experimentation the stray dogs of the city. In a number of cases, these statements were accompanied with comments expressing horror at the cruelty of the "experimenters" and "vivisectionists" employed in the government service and protesting against the Department of Agriculture entering on a career of wholesale vivisection. A more sensible method of procedure is shown in the following from *Our Dumb Animals*, the official organ of the Massa-

1. Med. Klinik, 1909, v, 1452; *THE JOURNAL*, Nov. 6, 1909, p. 1604.
2. Ann. de l'Inst. Pasteur, 1910, xxiv, 34.
3. Ann. de l'Inst. Pasteur, 1908, xxiii.

chusetts Society for the Prevention of Cruelty to Animals, a publication which can hardly be regarded as prejudiced in favor of animal experimentation:

A wide-spread indignation among humane people, and particularly among the foes of vivisection, has been aroused by newspaper reports to the effect that the Bureau of Animal Industry has entered into arrangements with the district commissioners of Washington whereby the former was to have turned over to it for experimentation the stray dogs of the capital city. Knowing how little confidence is to be placed in the ordinary newspaper report, we wrote at once to the department for the facts. Our readers will be interested in the reply which we summarize as briefly as possible:

There is a disease known as "gid" from the symptoms of giddiness which it commonly produces in affected animals. It is transmissible from dogs to ruminants only. Of the domestic animals, sheep are most often the sufferers from this trouble. The disease is prevalent in the northern half of Montana. It is generally traceable to imported sheep or imported sheep-dogs. The most effectual way to eradicate this disease is to keep dogs, particularly sheep-dogs, free from tapeworms, the multitudinous eggs of which scattered about the pastures are the immediate source from which sheep, cattle and other ruminants become infected with the disease.

The Secretary of the Department of Agriculture writes that arrangements were made whereby the district commissioners of Washington should supply a number of unclaimed dogs from the pound for use in investigations connected with this disease. He states, however, that nothing more painful can happen to these dogs than would be experienced in taking a dose of castor oil. The desire is to find the best vermifuge, that is the one most efficacious and suitable for the expulsion of tapeworms.

We commend the caution shown by the editors of *Our Dumb Animals* in going to headquarters for an authoritative statement instead of relying on garbled and misleading newspaper items. If all the advocates of humane treatment for animals would follow the same course with regard to their statements and "statistics," much of the misconception which surrounds this question would be dissipated. As has been shown repeatedly, there is an exceedingly small amount of suffering connected with "vivisection": most of the "evidence" submitted by the opponents of animal experimentation is the result of misconception or a heated imagination.

SUGGESTION AND NOSTRUMS

One of the cruellest and most despicable phases of the "patent medicine" business is the studied effort made by nostrum exploiters to frighten their victims into the belief that they are suffering from some more or less serious disease. Not content with the sale of their preparations to those who have—or who believe they have—one of the many diseases for which the products are recommended, the "patent medicine" venders strive to create an artificial demand for their stuff by working on the imagination of the healthy and persuading them that they are sick. The scheme is an old one but none the less disreputable. One of the more recent modifications of this trick is the "gall-stone remedy" fake, a type of which is described in the Pharmacology department of this issue. Hundreds and possibly thousands of people have been humbugged by this scheme and, unless physicians enlighten the public, thousands more will be. Once let people know that they are asked to pay a dollar for a few cents' worth of olive oil and a couple of Seidlitz powders and the number of cases of (imaginary) cholelithiasis will be reduced.

Medical News

DISTRICT OF COLUMBIA

Higher Requirements.—Word from Dr. William C. McNeill, secretary of Howard University School of Medicine, states that, beginning this fall, one year of collegiate work, including the subjects: physics, chemistry and biology, and a reading knowledge of German or French, will be required for admission. The name of this college was omitted from the list published in our Educational Number of those schools which were requiring one year of collegiate work for admission.

Personal.—Dr. MacPherson Crichton, Washington, appeared before the Justice of the Police, August 29, for a preliminary hearing on the charge of manslaughter, alleged to have been due to an automobile owned and driven by Dr. Crichton. A bond of \$5,000 was given at the time for his appearance. It is said that he has been arraigned three times for unlawful automobiling and was held on bonds of \$150 in each case for his appearance September 4.—Dr. Charles S. White, Washington, has been appointed deputy coroner by the District Commissioners, vice Dr. Larkin W. Glazebrook, resigned to become chief surgeon of the Washington Railway and Electric Company.

Studying Poliomyelitis.—The Medical Association of the District of Columbia at its meeting, August 23, 1910, appointed a committee to investigate and report on the status of epidemic anterior poliomyelitis in Washington. The disease has been prevalent in Washington during the summer, as it has in many other places, and this action is in line with that taken in other localities, to obtain all the information possible on its etiology, epidemiology, course, diagnosis, etc. The committee desires complete records of all cases occurring in the district in both private and hospital practice and to that end has prepared and sent out a circular letter explaining the object of the inquiry and requesting the cooperation of physicians in making the investigation complete. A question blank covering all angles of the disease accompanies the letter. The points to be covered in the inquiry are as follows:

1. Whether the secretions of the nose and throat are capable of carrying the disease, and, if so, when the period of infectivity begins and when it ends.
2. Whether it is possible by any method to recognize the disease with certainty before the onset of paralysis, and, if so, how.
3. Whether it is possible by any method to identify abortive or atypical cases, and "carriers," if "carriers" exist, who present no clinical symptoms.
4. Whether any intermediate host, such as insects or domestic animals, may be responsible for the transmission of the disease.

ILLINOIS

Chicago

Personal.—Dr. Mortimer Frank has been appointed a member of the Chicago Public Library Board.—Drs. G. Payll Marquis and William L. Baum have gone to Europe.

Health League Organized.—At a meeting held September 14 in Hull House theatre, the Chicago Health League, an organization to join all forces of the city, individual and municipal, in a cooperative effort for better sanitary living conditions, was formed. Dr. H. Cohen presided, the sanction of the department of health was given to the enterprise, and Health Commissioner Evans stated that an organization embodying all the functions of the numerous associations would tend to make more perfect sanitary conditions.

INDIANA

Public Comfort Station Dedicated.—The first public comfort station in the state was dedicated in Indianapolis at the corner of Wabash and Illinois streets.

Fraud Order Entered.—The post office department is said to have entered a fraud order against Dr. Jacob W. Coblenz and the Compound Oxygen Company, Fort Wayne, who are alleged to have been exploiting a mixture called "Compound Oxygen."

Addition to Hospital.—Work has been begun on a large addition to the Methodist Episcopal Hospital, Indianapolis. The building will be four stories in height. Each floor will have a sun parlor. A roof garden will be added and 72 additional patients can be accommodated in the institution.

Association of Charities Meeting.—At the recent meeting of the State Association of Charities, Indianapolis was chosen as the next meeting place. Prof. U. G. Weatherby, of Indiana University, was elected president; Mrs. Wallace B. Campbell,

Anderson, secretary, and Dr. Samuel E. Smith superintendent of the Eastern Hospital for the Insane, Richmond, chairman of the executive committee. One of the chief topics discussed was that of farm colonies for the insane.

Antituberculosis Work of the Red Cross.—The Indiana State Organization of the Red Cross gave a demonstration at the State Fair at Indianapolis last week of the work being done for the prevention and treatment of tuberculosis. A cottage was erected on the fair grounds and the latest methods of prevention and treatment of tuberculosis were demonstrated.

Tuberculosis Colony to be Established.—The St. Joseph County Hospital has appropriated \$5,000 for the establishment of a detention hospital and \$3,500 for a permanent fresh air colony for tuberculosis.

Personal.—Dr. Joel M. Partridge, South Bend, is reported to be seriously ill in Epworth Hospital, South Bend. —Dr. E. S. Waymire, a member of the house staff of the Methodist Episcopal Hospital, has been appointed house surgeon of the Wabash Railroad Hospital, Peru. —Drs. Geo. D. Kahlo, French Lick, and Chauncey W. Dowden, West Baden, have returned from Europe. —Dr. Earl Green, Muncie, has been elected Captain in the Medical Corps, Indiana National Guard. —Dr. Claude Lenox, Tell City, has gone to the Island of Molokai, to make a clinical study of leprosy.

KANSAS

Personal.—Dr. Elmer E. Haynes, Lewis, has been elected director for the Southwestern Division of the North American Esperanto Association. —Dr. George H. Brown, a practitioner of Chaunte for more than thirty-five years, has given up practice on account of ill health and has moved to Kansas City. —Dr. Franklin H. Redmond, Osawatimie, has resigned his position on the medical staff of the State Hospital. —Dr. Chilton W. McLaughlin, Kansas City, has been elected vice-president of the Bureau of Associated Medical Fraternities of the National Fraternal Congress.

LOUISIANA

New Home for Medical Society.—A permit has been issued for the erection of a two-story brick building, in New Orleans, to cost \$12,000, for the use of the Orleans Parish Medical Society.

New Sanitarium to be Opened.—The Louisiana Tuberculosis Sanitarium, Hygeia, was opened for inspection September 18. A main building has been erected at a cost of \$6,000, together with several cottages, and a large amount of land has been set aside for cultivation.

New President for State Board.—Dr. Oscar Dowling, Shreveport, has been elected president of the State Board of Health, vice Dr. D. Harvey Dillon, New Orleans, resigned, and assumed the duties of his office September 1. Dr. Dowling announces his plan for an educational health campaign to be initiated at once throughout the state.

City Health Board Organizes.—The New Orleans Board of Health held its monthly meeting September 13. Dr. William T. O'Reilly was reelected chairman of the Board, Dr. Paul E. Archinard, bacteriologist; Dr. Abraham L. Metz, chemist, and Dr. Paul J. Gelpi, Jr., inspector of communicable diseases. It is announced that Dr. William H. Robin will succeed the late Dr. Sidney Theard as secretary and treasurer of the board and that Dr. James A. Henderson will become a member of the board in Dr. Robin's place.

MARYLAND

Hospital News.—The trustees of Elkton Hospital have made an appeal for \$7,000 to enlarge the hospital building. —The directors of Western Maryland Hospital, Cumberland, have purchased for \$3,600, the residence opposite as a home for nurses. This will give ten more rooms for the use of patients. —A new nurses' home and central heating plant are to be added to the Frederick City Hospital. —About \$300 was raised at a picture show and automobile carnival at Havre de Grace, September 14, toward a fund for the proposed hospital in that place.

Baltimore

Sailed for Europe.—Drs. Frank C. Ainley, J. W. Rosenfeld, Lawrence Selling, Caroline B. Towles, and Milton C. Winternitz, all of Johns Hopkins Hospital and Medical School, sailed for Europe September 14, to pursue clinical studies in Germany.

Hospital Reports.—The annual report of the Church Home and Infirmary shows an income of \$73,075 with expenses of \$71,100, leaving a balance in the treasury of \$2,065. —The Maternité Hospital of the University of Maryland reports during the last year 201 confinements in the hospital and 865 in the outdoor department, giving an average of about thirty obstetric cases seen by each member of the graduating class.

MISSISSIPPI

Gift to Hospital.—Mrs. Lemuel P. Conner, Natchez, has donated twenty-four rolling chairs, one hand-lever tricycle, and one child's rolling chair to the Natchez Charity Hospital.

Health Exhibit at State Fair.—The State Board of Health is preparing an exhibit for the State fair this fall which will include drawings and photographs of insects responsible for the spread of typhoid and malarial fevers, as well as the hookworm parasite. Mosquitoes which are malarial carriers will be shown side by side with mosquitoes of the harmless variety, so that the public can learn to distinguish between them. Pamphlets on the cause, prevention and cure of diseases most prevalent in the state will be distributed to the public at the same time. A display of the National Tuberculosis Exhibit is also being arranged for in connection with the State Board demonstration. It is anticipated that a large number of the people who attend the State Fair may be reached in this way.

NEBRASKA

Personal.—Colonel John M. Bannister, Medical Corps, U. S. Army, has retired and will practice ophthalmology in Omaha. —Dr. Howard B. Hamilton, Ainsworth, Iowa, has moved to Omaha.

Medical Schools Open.—The John A. Creighton Medical College, Omaha, opened for its annual session, September 1. —The University of Nebraska, College of Medicine, Omaha, began its school year, September 13.

NEW JERSEY

School Medical Inspectors.—East Orange has a waiting list of physicians who are desirous of becoming medical examiners in the public schools, although it has been reported from some sections of the state that physicians are averse to accepting these appointments on account of the small fees allowed by the school inspection law.

Camden Health Board Tests Candy.—"Kelly" candy balls, a popular confection, are believed to have caused the illness of many children in Camden, but so far only three serious cases have developed. In these the infection first showed itself in blotches and later the tongue became greatly swollen, almost filling the mouth. Some of the candy has been sent to the State Health Board for analysis.

NEW YORK

The Tuberculosis Campaign.—The State Department of Health has assembled a large and comprehensive traveling tuberculosis exhibition, which has formed a very important feature in local campaigns. The work of the immediate future will consist of individual county campaigns, and the use of small tuberculosis exhibitions in many of the smaller towns throughout the state.

Tent Hospital Opened.—The temporary tuberculosis hospital was completed at the Monroe County Farm, Brighton, September 3, and two days later patients were received for treatment. The hospital consists of three apartments, a porch, a sleeping room, and a dining room. The sleeping room will accommodate eighteen patients. It is not expected that the new county hospital will be opened before next spring.

Personal.—Dr. Albert E. Leach of Mount Morris was seriously injured in a collision between his automobile and a locomotive on September 13. —Dr. E. S. McClellan, president of the Saranac Lake Board of Health, was struck by a passenger train, September 3, fracturing a rib, spraining a wrist, and sustaining numerous contusions. Notwithstanding the advanced age of Dr. McClellan, he is reported to be making a good recovery.

New York City

Personal.—Dr. Carlos F. MacDonald has returned from Europe. —Dr. Jacques C. Rushmore, Brooklyn, Dr. and Mrs. Isadore W. Feld and Dr. and Mrs. Elon N. Carpenter have sailed for Europe.

Women to Work for Pure Milk.—An organization has recently been formed by some women at the Hotel Astor, to be known as the International Pure-Milk League. They intend to investigate all matters having a bearing on the production and price of pure wholesome milk. In New York City they will cooperate with the health department.

Better Care for School Children.—The common drinking cup has been banished from the public schools of this city. While great care has recently been exercised in regard to the teeth of the children not so much has been directed to caring for the eyes and this year the following instructions will be pasted in each book:

Never read in bad light. Always hold your head up when you read. Your eyes are worth more than any book to you. Hold your book about fourteen inches from your face. Let the light come from behind or over your left shoulder. Your safety and success depend on your eyes; take care of them. Rest your eyes by looking away from the book every few moments. Avoid books or papers printed indistinctly or in small type. Never read with the sun shining directly on the book. Wash your eyes night and morning with pure water. Be sure that the light is clear and good. Never face the light in reading.

Dr. Maxwell, superintendent of public instruction, who has just returned from Europe, where he made a study of schools, found the German schools far in advance of ours as regards cleanliness and neatness of both rooms and pupils.

NORTH CAROLINA

Land Deeded to Hospital.—The town of Woolsey having lost its charter and become a part of the city of Asheville, the executors of the late Colonel Woolsey have deeded, without reservation, the town hall and adjoining lots to the Mission Hospital, Asheville.

Antituberculosis Association Organized.—On August 23, the Edgecombe County Antituberculosis Association was organized in Tarboro. Dr. S. P. Bass, superintendent of the local board of health, presided, and at the election of officers was made secretary-treasurer of the association.

Personal.—Dr. William H. Moss, who has resided for the last seven years at Atlanta, Ga., has returned to his former home, Charlotte, and will resume practice there.—Dr. William T. Carstarphen, Kittrell, has been elected professor of physiology in Wake Forest Medical School.—Dr. Hubert A. Royster, Raleigh, has been unanimously elected president of the Chamber of Commerce of that city.

Hookworm Investigation.—Dr. John A. Ferrall, assistant secretary of the State Board of Health for Hookworm, working under the Board and the Rockefeller Commission, has completed a careful canvass of the state, and has demonstrated the presence of hookworm in every county. The field is divided into districts and is being actively worked in order to familiarize both the profession and the public with the symptoms, results and treatment of the disorder. The commission is expending \$20,000 a year in the state for this work.

OKLAHOMA

College Opens.—The Oklahoma City department of the State University Medical Society opened for its annual session, September 16, with an address by President A. Grant Evans of the university.

Medical Association to Meet.—The Central Oklahoma Medical Association, which was announced to meet in Chickasha in June last, will hold its meeting in that place October 4, as the guest of the Grady County Medical Association.

Personal.—Dr. Joseph Hensley, Oklahoma City, has resigned as a member of the State Board of Medical Examiners.—Dr. Franklin P. Davis, Enid, secretary of the State Medical Board, has been elected superintendent of the State School for Feeble-Minded, Enid.

OREGON

Raise Money for Hospital.—The first two days in September \$5,000 was subscribed toward the hospital which the Sisters of Providence are planning to erect in Medford at a cost of \$100,000.

State Association Meeting.—The thirty-sixth annual meeting of the Oregon State Medical Association was held in Portland September 7-9. The following officers were elected: President, F. W. Vandyke, Grant's Pass; vice-presidents, Drs. Robert C. Yennet, Portland; Samuel T. Linklater, Hillsboro, and Robert E. Ringo, Pendleton; secretary, Dr. Calvin S. White, Portland; treasurer, Dr. Edna D. Timms, Portland (elected), and councilors, Drs. William House and Noble W. Jones, Portland. The Baker County Medical Association was granted a charter by the association.

PENNSYLVANIA

Physicians of Three Counties Meet.—At the annual meeting of physicians of Dauphin, Lebanon and Lancaster counties, held at Piqua, August 25, the following officers were elected: President, Dr. Warren F. Klein; vice-president, Dr. William M. Guilford, and secretary, Dr. William R. Roedel, all of Lebanon. Lebanon was decided on as the place of meeting for 1911.

Individual Drinking Cups Used.—State Health Commissioner Dixon made public, September 14, the report given him by the Pennsylvania Railroad of the results of the campaign against the common drinking cup. In the Harrisburg Station alone, during the month of August, 3,700 individual drinking cups were used and at Lancaster, 1,540. The figures for other stations were: Parkersburg 200; Coatesville, 300; Downingtown, 195; Wayne, 579; Bryn Mawr, 643; Ardmore, 286, and Columbia 359.

Personal.—Dr. Herbert S. VanKirk, McKeesport, sustained injuries to the foot by contact with the propeller shaft of a gasoline launch in which he was riding.—Dr. Edward R. Plank, Carlisle, has been reelected a member of the local board of health.—Dr. Elmer P. Norris, Newcastle, has been appointed surgeon of the Pennsylvania Brigade, Uniform Rank, K. of P.—Dr. John W. Luther, chief surgeon of the Palmyerton Hospital, underwent operation for appendicitis at the University of Pennsylvania Hospital, September 8.

Philadelphia

Personal.—Dr. Donnel Hughes returned from Europe September 13.—Dr. Charles H. Gardner has been elected surgeon-general of the Union Veterans' Legion.

Hospital Society Elects.—At the June meeting of the Woman's Hospital Medical Society, the following officers were chosen to serve for the ensuing year: Pre-ident, Dr. Mary Getty; vice-president, Dr. Annie L. Connor; secretary, Dr. Margaret A. Warlaw, and treasurer, Dr. Mary T. Miller.

Fire in Tuberculosis Institute.—A fire which originated on the fourth floor of Henry Phipps Institute, August 29, did little damage but caused great excitement. Twenty-five patients were quickly removed from the building, which was saved by the speedy action of a volunteer fire brigade of physicians and nurses.

Asks Money for Home for Feeble-Minded.—A message has been sent to City Councils by Mayor Reyburn asking that body to appropriate \$150,000 for the purchase of 120 acres of woodland as a site for the erection of a home for the indigent and feeble-minded children. This land is on the Delaware River, immediately north of the Torresdale filtration plant.

English Ophthalmologist in Philadelphia.—Dr. Sydney Stephenson, the noted English ophthalmologist, was the guest of honor at a number of entertainments while in this city. On September 13, Dr. Wendell Reber gave a luncheon; on September 14, Dr. W. Campbell Posey gave a luncheon at the University Club and in the evening he was the guest of honor at a dinner given by Drs. L. Webster Fox and S. Lewis Ziegler at the Union League Club.

New Factors in Tuberculosis Fight.—The dedication exercises of the new home of the Jewish Consumptive Institute at Fourth and Water streets, began September 11, and continued throughout the week. The building is equipped with a dispensary for clinical service, a laboratory for microscopic research, and has a staff of physicians, and also one of nurses for visiting patients at their homes.—The Philadelphia Jewish Sanatorium for Consumptives has completed plans for a children's pavilion soon to be erected at the farm in Eaglesville.

Opening of University.—The annual opening exercises of the University of Pennsylvania were held September 23. A new department of tropical medicine has been inaugurated. Among the new members of the faculty of the medical school are: Dr. R. M. Pearce, professor of pathology and research medicine; Dr. A. E. Taylor, professor of physiologic chemistry; Dr. A. N. Richards, professor of pharmacology, and Dr. David L. Edsall, professor of medicine; Dr. Allen J. Smith, formerly professor of pathology, becomes professor of tropical medicine and comparative pathology, with Dr. Damaso Rivas as assistant; Dr. James H. Austin has been appointed demonstrator of pathology and Dr. A. B. Eisenbrey, assistant in research medicine. Dr. Louis A. Durring, who has held the chair of dermatology for many years and a professorship since 1876, has resigned.

The Tyson Portrait for the College of Physicians.—The committee of arrangements for the dinner given to Dr. James Tyson on May 5 finds, after the payment of all bills, that it

has a surplus that has been increased by an unsolicited and generous donation from one of Dr. Tyson's friends, who is not a physician. It desires to add to this surplus a sum sufficient to enable it to employ a competent artist to paint a portrait of Dr. Tyson to be presented to the College of Physicians, of which he is an ex-president, as a further and enduring evidence of the esteem in which he is held by the medical profession. In order to accomplish this, the committee invites contributions from all fellows of the college and especially from those who, from various causes, were unable to subscribe to the dinner. Checks should be drawn to the order of Dr. W. C. Posey, treasurer, and forwarded to him at 2049 Chestnut street.

SOUTH DAKOTA

Change in Medical Board.—Dr. Frank S. Howe, Deadwood, has been appointed a member of the State Board of Medical Examiners to fill the vacancy caused by the resignation of Dr. Hiram E. McNutt, Aberdeen.

State Association to Meet.—The twenty-ninth annual session of the South Dakota State Medical Association will be held in Hot Springs, September 27-29. On the evening of the second day, the society will be guests of Dr. Miller, governor of the Battle Mountain National Sanatorium.

Contracts for Sanatorium Building Let.—The contract has been let to a Rapid City firm of contractors for the following buildings for the South Dakota State Sanatorium for Tuberculosis: Pavilion for patients, cottage for dining room and kitchen, and superintendent's residence. The house already on the site is to be used for quarters for the help. It is expected that the buildings will be completed by December 1, and that patients will be admitted a month later.

TENNESSEE

Eastern Tennessee Physicians to Meet.—The annual meeting of the East Tennessee Medical Society will be held in Bristol, September 29 and 30.

Personal.—Dr. and Mrs. Edwin G. Wood, Nashville, have sailed for Europe, and on their return expect to locate in Toronto, Ont. —Dr. Isaac N. Frost, Memphis, has been appointed local medical examiner for the Panama Canal Commission.

College Opens.—The sixtieth annual session of the Medical Department of the University of Nashville and the University of Tennessee opened September 5. Dr. Robert O. Tucker, dean of the faculty, presided, and in his opening address mentioned that a laboratory of pharmacology, the only one in the state, had been equipped and placed in charge of Dr. Joseph P. Keller; that new equipment to the value of several thousand dollars had been purchased, and that forty new microscopes for the use of students had been ordered and delivered.

TEXAS

State Health Officers' Conference.—The State Health Board announces that the annual meeting of health officers of the state will be held in Houston, September 25-27.

Medical College Opening.—The Medical Department, University of Texas, Galveston, will be opened for its fall term, October 1. Dr. George F. Gracey has succeeded Dr. Arthur E. Austin as professor of chemistry, and Dr. George H. Lee has succeeded Dr. John F. Y. Paine as professor of obstetrics.

Personal.—Dr. Lane B. Kline has been appointed medical missionary to the Philippine Islands under the Foreign Missionary Society of the Christian church. —Dr. Otto Ehlinger, LaGrange, has been elected surgeon to the Agricultural and Mechanical College of Texas, College Station, vice Dr. Joseph R. Lay, resigned. —Dr. Rufus F. Minnock, city physician of Waco, has been appointed chairman of the city health department. —Dr. Frederick J. Combe has been appointed district surgeon for the St. Louis, Brownsville and Mexico Railway, vice Dr. Harry K. Loew, resigned, with headquarters at Brownsville. —Dr. A. Philo Howard, Houston, has been appointed surgeon for the Frisco lines east of Houston.

UTAH

State Association to Meet.—The annual meeting of the Utah State Medical Association will be held in Salt Lake City, October 3 and 4, under the presidency of Dr. Joseph S. Richards.

Personal.—Dr. Patrick S. Keogh of the Keogh-Hammond Hospital, Salt Lake City, who was seriously injured, September 5, is reported to be recovering. —Dr. Frederick Clift, for more than five years assistant physician at the State

Mental Hospital, Provo, has resigned, and will assume a similar position in the Kayville Hospital. Dr. Clift has also resigned as secretary-treasurer of the Utah County Medical Society, and has been succeeded by Dr. Horace G. Merrill.

School Medical Staff Appointed.—The Board of Education of Salt Lake City has nominated the following staff for inspection of children in the public schools: Chief of staff, Dr. Eugene W. Whitney; secretary, Dr. Theodore B. Beatty, secretary of the State Board of Health, and Drs. Samuel G. Paul, city physician, Samuel H. Allen, Stephen L. Richards, Clarence Snow, Jane W. Skolfield, Charles F. Wilcox, Charles I. Douglas, Parley P. Musser, Harry N. Mayo, Luella P. Miles and John F. Critchlow.

VIRGINIA

Medical College Opens.—The Medical College of Virginia opened for its annual session, September 11, with an address of welcome by Dr. Christopher Tompkins.

Personal.—Dr. Sparrell S. Gale, Roanoke, has gone to attend clinics at Rochester, Minn. —Dr. Powhatan S. Schenck has succeeded Dr. Harry R. Dupuy as health commissioner of Norfolk. —Dr. F. L. Banks, Madison county, one of the assistant physicians of the Central State Hospital, Petersburg, has resigned, and has been succeeded by Dr. B. L. Carleton of Essex county.

GENERAL NEWS

Coming Meetings.—The Southern Medical Association will hold its annual meeting in Nashville, November 8-10. —The Medical Association of the Southwest will hold its annual meeting in Wichita, Kan., October 11 and 12. —The American Association for the Study and Prevention of Infant Mortality will hold its annual meeting in Baltimore, November 9-11.

Meeting of French-Speaking Physicians.—At the fourth annual meeting of the Association of French-Speaking Physicians of North America, held in Sherbrooke, Quebec, August 24 and 25, the following officers were elected: Honorary presidents, Drs. J. J. Guerin, and A. Achille Foucher, Montreal; president, Dr. Henri Hervieux, Montreal; vice-presidents, Drs. J. M. Arthur Rousseau, Quebec; Joseph O. Ledoux, Sherbrooke; and Joseph C. H. Gauthier, St. Ephrem d'Upton; secretary, Dr. Joseph Gagnon, Montreal, and treasurer, Dr. Benjamin G. Bourgeois, Montreal.

Mississippi Valley Meeting.—At the thirty-sixth annual meeting of the Mississippi Valley Medical Association, held in Detroit, September 13 to 15, the following officers were elected: President, Dr. Robert H. Babcock, Chicago; vice-presidents, Drs. Arthur D. Holmes, Detroit, and Charles E. Barnett, Fort Wayne, Ind.; secretary, Dr. Henry Enos Tuley, Louisville (reelected); and treasurer, Dr. S. C. Stanton, Chicago (reelected). The selection of a place of meeting and of the chairman of the committee of arrangements for 1911 was left to the Executive Committee with power to act.

Electro-Therapeutists Meet.—The twentieth annual meeting of the American Electro-Therapeutic Association was held in Saratoga Springs, N. Y., September 13-15, and the following officers were elected: President, Dr. Frederick DeKraft, New York City; vice-presidents, Drs. F. Howard Humphris, London, England, and Frank B. Granger, Boston; secretary, Dr. J. Willard Travell, New York City (re-elected); treasurer, Dr. Emil Henel, New York City; registrar, Dr. Frederick M. Law, New York City (reelected); and trustees, Drs. Charles R. Dickson, Toronto, Ont., and Thomas D. Crothers, Hartford, Conn.

Death Rate for 1909.—The death rate in the registration area of the United States for 1909, is lower than that for any previous year; the U. S. Census bulletin on mortality statistics gives the death rate, based on the provisionally estimated population for that year, as 15 per thousand, as against 15.4 for 1908. The bulletin states that it is evident that an era of low mortality has begun and cites the fact that the death rate in England and Wales for the same year was 14.5 and for London was 14. This latter fact demonstrates the fallacy of the idea that high death rates are necessarily found in large cities. The largest number of deaths returned for any month of 1909 was 70,093 for March, and the month having fewest deaths was June. The registration area comprised 55.3 per cent of the estimated population for that year.

Health of the Philippine Islands.—In the report of the Bureau of Health of the Philippine Islands for the quarter ended March 31, Dr. Victor G. Heiser, the director, notes a decrease of 1,025 Americans, 539 Spaniards, 333 other Europeans, and 3,935 Chinese between 1907 and 1910, and an increase

of 16,567 Philipinos and 132 of other nationalities, making a net increase of 10,867.—At the first biennial meeting of the Far-Eastern Association of Tropical Medicine, held in Manila, March 5 to 12 and in Baguio, March 13 and 14, work of especial value was reported in beriberi by Fraser, of the Straits Settlements and Aron, of the Philippine Medical School, showing that an outbreak of the disease in most cases is caused by the continued consumption of polished rice and that the disease is probably due to the deprivation of phosphorus which is polished away during the milling process. It is hoped that by prohibiting the use of polished rice in public institutions, the disease may be eradicated from such places.—Dr. Heiser also notes that the experiments with cancer vaccine made by Dr. Coca and P. K. Gilman, met with excellent preliminary results.—A description of the means by which the leprosy organism may be grown outside of the human body was presented and a paper was also presented by Dr. Strong on his experiences with the Ehrlich method of using arsenophenyglycin for the treatment of surra in horses.—There were reported 578 cases of cholera in the islands. In 1909 there were 2,221 and in 1908, 806 cases. More than 2,500,000 doses of quinin have been purchased and arrangements have been made for gratuitous distribution of the medicine in the malarious sections of the islands.—The outdoor treatment of tuberculosis in the mountains of Benguet has been commenced and a number of patients are now under treatment and making encouraging progress.—The tuberculosis camp at San Juan, near Manila, is being transformed into a suitable sanitary site and soon will be ready to receive patients.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, August 9, 1910.

Prevention of Tuberculosis in the Philippines

Another step forward is to be noted in the progress of preventive medicine in the Philippines. This is expressed in the organization of the National Society for the Study and Prevention of Tuberculosis in the Philippine Islands. In many respects one feels agreeably surprised to find that in this comparatively new country (that is from an American point of view), medicine and the medical sciences are so much to the front and are of such a high standard. From the central government's having a more direct control of sanitation and quarantine than is the case in America, and from the fact that good health is so extremely important and desirable in the tropics, this condition of affairs is in a measure to be expected among the Americans and Europeans. But in spite of this the popular support given to medical problems in general by the Americans and a great number of the Filipinos, and the good spirit in which these are received by the masses of the people, are rather gratifying. Many measures are more easily put into practice in the Philippine Islands than in America. The new National Society for the Study and Prevention of Tuberculosis in the Philippine Islands was organized and had its first meeting in the assembly room of the insular capitol building. It was presided over by the governor-general, and the U. S. Secretary of War, Hon. Jacob M. Dickinson, delivered an address. The organization is about equally well represented by Americans and Filipinos and many of the latter are on important committees. The first main object of the association is one of education and the protection of the people from the infectious cases.

The association starts its work under the most auspicious circumstances. It has the undivided support of the government, the medical profession, the laity, the church (both Protestant and Catholic) and the press. It was brought out at the first meeting that tuberculosis is general throughout the Philippines, that about 20 per cent. of the people of the islands are infected in one form or another, and that the annual financial loss due directly to tuberculosis is from \$20,000,000 to \$60,000,000. The annual death-rate in Manila from tuberculosis is from 5 to 6 per 1,000. In a country whose climate is never severe, where there is little abject poverty and plenty of fresh air this condition of affairs is hardly to be expected. Moreover, the houses are built so that they can be thrown wide open to both sun and air. But the filthy condition in which the people live, the low standard of living, with often insufficient food, and the decided overcrowding in the homes are taken to be the principal factors in the prevalence and spread of tuberculosis. It is even said that the condition in which the inhabitants sleep is directly responsible for the major part of the tuberculosis. From 6 to 20 people usually eat, live and sleep in 1 or 2 small rooms. At night the house is closed up as tight as it is possible to

close a nipa house. All windows, doors and cracks are closed and a little kerosene lamp is kept burning all night to keep out the night air and to drive away the evil spirits. When there are one or two individuals with advanced tuberculosis sleeping among the others and spitting promiscuously about the place it is easy to see how the disease is spread. This overcrowding and the superstition which usually accompanies it promise to be the most difficult obstacles in the fight against tuberculosis.

Among the factors which are calculated not only to improve the general health of the people of the islands but also to aid materially in their education is to be mentioned and particularly emphasized, the work being accomplished by the Bureau of Public Works. This bureau is building good roads throughout the islands, trying to establish a sanitary water supply for every community and is draining many cholera-haunted rice marshes and establishing sanitary irrigation. The attempt to give every barrio pure water is meeting with great success and widespread commendation. Unfortunately the capacity of the bureau in this regard is by no means as great as desirable. In the municipalities and larger towns of the provinces public artesian wells are being dug just as fast as possible. In the smaller towns deep wells enclosed and covered over with concrete encasements and fitted with pumps are being installed. These are usually near the center of the town and near the American schoolhouse. It is useless to add that the health conditions in these communities almost immediately improve. In those regions where cholera is endemic wells are especially urged. In some of these remote districts it almost seems like a liberal education when the native has learned to use and appreciate pure drinking water. To these cholera endemic regions the attention of the Bureau of Public Works has recently been directed. It is proposed to establish a system of irrigation to supplant the present system of stagnant irrigation, and to have it so arranged that the rice fields may be flooded and drained at will, either by a high tide in those districts along the coast, or in the hills from a river or reservoir.

Such is another phase of the American campaign of sanitation and irrigation in the Philippine Islands.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, September 10, 1910.

A Nurse's Mistake: The Danger of the Similarity of the Dram and the Ounce Symbols

It is curious that the danger of the similarity of the dram and the ounce symbols of pharmacy has not received more attention and that cases of poisoning from confounding them are not recorded. Probably the great difference in dose prevents a mistake on the part of the pharmacist, however bad the writing in a prescription. But in the case of nurses, or other persons ignorant of pharmacy, who may have to administer medicine, there is no such safeguard. The reality of the danger is shown by the following case. A woman, aged 45, was admitted into St. Thomas' Hospital suffering from exophthalmic goiter and advanced pulmonary tuberculosis. Her nurse was responsible for giving a sleeping draught of liquor morphine hydrochloridi which was prescribed on the bed-card. The solution was kept in a poison chest in the ward, which was lighted by electricity when the nurse poured out the dose into a graduated measure. The amount ordered was a dram, but the nurse mistook the symbol for ounce and administered that dose. After five minutes she discovered her mistake and called the house physician. He could find no signs of morphin poisoning then or up to the time of the patient's death, and at the inquest he stated that the patient might have died at any time from disease. He did not think that the morphin accelerated death. The nurse said that the symbols for dram and ounce were very similar and that nurses were not trained as to the fatal doses of poisons; they had to find out for themselves. The coroner commented on the danger of having a number of closely-written lines containing the names of several poisons on a bed-card and on the danger of permitting nurses to measure poisons. The jury found that the woman died from the effects of disease accelerated by the shock following the treatment made necessary by the nurse's mistake, and recommended that directions for administering medicine should be written in plain English instead of "hieroglyphics."

Mortality Due to Wild Animals in India

The "Statistical Abstract" relating to British India, which has just been published, shows a decline in the deaths due to wild animals. Whereas in 1899 these amounted to 27,585,

in 1908 they had fallen to 21,904. Of these deaths the snake is responsible for the overwhelming majority—24,619 in 1899 and 19,738 in 1908. There are curious fluctuations in the man-eating propensities of the tiger. In 1908 he killed 1,908 persons; in 1906, 690, and in 1901, 1,171. The killing of cattle by wild animals is a fairly constant factor—98,687 in 1899 and 98,307 in 1908. In these figures the leopard is an easy first and the tiger a good second. These animals alone ate over 71,000 cattle while wolves accounted for another 10,000. On the other side of the account there is the satisfactory total of 17,296 wild animals and 70,494 snakes killed in 1908.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Sept. 9, 1910.

Liquor Dealers Protest Against Temperance Agitation

A committee representing the organized restaurant and saloon keepers has recently presented a protest to the government against the "campaign being waged in the name of hygiene by the temperance societies." This protest against the antialcohol crusade is eloquent testimony to the disregard for public health interests on the part of the liquor dealers and should suffice to discredit certain other demands they are making at this time.

Proposed Changes in the Outlay for Public Charities

Since 1905, when the law went into effect which provided for old age pensions, it has been felt more and more that it would be better policy to do more for the welfare of the children who are some day to become the vital force of the nation. At present the city of Paris, for example, expends yearly scarcely two million dollars for all its maternities, children's hospitals and asylums, milk stations, day nurseries, fresh-air schools, etc. On the other hand, for the aged and the insane it expends over ten millions. This lack of proportion between the provisions for the rising and the declining generations is particularly shocking on account of the prevailing low birth-rate, which renders it peculiarly imperative to save as many as possible of the children that are born and to reduce the number of stillbirths by proper care of pregnant women. These ideas have inspired M. A. Rendu, a member of the city council and at one time president of the board in charge of the public charities, the *Assistance Publique*, to propose in the council a measure designed to divert more of the funds to the care of young girls, mothers, infants and children, instead of devoting them so predominantly to the care of the aged and the insane. His plan does not contemplate depriving the aged and the insane of their support, but it proposes to board them out in rural districts. All the aged who were not born in Paris and have not founded a family there would be removed to their native province and supported there either in local asylums or with relatives, their pension of 30 francs (\$6) a month to be forwarded regularly to them. This would relieve the Paris asylums where most are now housed and where it costs for each over \$160 a year; only those too infirm to be moved or without any relatives would be retained there. The same plan could be followed with the insane, whose support in the Paris asylums costs over \$200 a year apiece. Rendu believes that large sums would thus be saved; this amount would then be available for increasing the number and scope of the institutions and agencies for aiding pregnant women and mothers, infants and older children; that is, the elements on which the future of the race depends and which at present rank second or third in the outlay for public charities.

Contract Practice in France

The lodges and sick benefit societies have multiplied so rapidly in France that now they list about five million members. Unfortunately this development has taken place in large part at the expense of the medical profession. The lodges assume the expense of medical attendance for their members and contract with certain physicians at a very low rate. Many young doctors just entering on practice contract with the societies in this way, hoping that the number of patients will make up for the smallness of the individual fees. Some physicians are even complaisant enough to accept the deplorable system of contracting to attend the members for a certain lump sum, determined in advance, representing a certain small sum per member per year. The result of this contract work is that physicians may receive \$480 a year and have to make 4,000 calls for visits, which is only a little over ten cents a visit. This situation is particularly distressing at

present, when physicians in various parts of the country, and especially at Paris, are striving to raise their fees. The lodges and benefit societies are also beginning to see the folly of attempting to estimate in advance the demands that will be made on the lodge doctor, and the members are beginning to realize that at a ten-cent rate the physician may be inclined to neglect them for his more remunerative patients. The French law compels the societies of this kind to keep a certain proportion of their funds in reserve so that they are unable to dispose of them at will, but the members' fees might be raised a little, enough to do some justice to their medical attendants. Another point on which the profession and the lodges are disputing is that the members should not be restricted in their choice of a physician but should be entitled to call on any medical man; this "free choice" would distribute the work more evenly among the local physicians while guaranteeing better their absolute independence. The lodges state that they cannot permit this free choice without a certain guarantee and right of control to eliminate abuses. A solution of the difficulty has been proposed by M. Emile Loubet, the former president of France, who is much interested in the development of the mutual aid societies; he proposes the organization of boards of arbitration at Paris and in the various provinces to settle all disputes that may arise in the course of contract practice. Conditions at present are threatening the welfare both of the physicians and of the societies.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 2, 1910.

Marriage Statistics of the German Empire

If the marriageable age for males is placed at 21 as the lower limit and 70 as the upper, there were on December 1, 1900, when the last official census was taken 14,045,033 males of marriageable age. Of these 4,044,206 were single, 9,456,241 married, 544,586 widowed or separated. There were therefore at that time in Germany 4,588,792 marriageable males. In the course of ten years from 1899 to 1908, 4,803,399 marriages were celebrated. 480,400 males, on the average being married yearly, i. e., 1,047 for every 10,000 marriageable men.

If we place the beginning of marriageable age for women at the end of the fourteenth year and the upper limit at 70, there were on December 1, 1900, in Germany 18,540,081 female persons of marriageable age; of these 7,105,906 were single, 9,622,246 married, 1,811,929 widowed or separated. There were therefore in Germany 8,917,335 marriageable women. In the decennium from 1899 to 1908, 480,400 women on the average married yearly, or 539 for every 10,000 marriageable women. In 1899 the number of marriages in the German empire was 471,519. The number of marriages sank in 1902 to 457,208, and has risen from that time to 1907. Last year it amounted to 503,964. In the last five years ending in 1905 the number of marriages had risen 10.3 per cent. while the population and probably also the number of marriageable persons had risen in the same time only 7.6 per cent. In 1908 the figure had again sunk to 500,620.

Tuberculosis in Bavaria

At one of the latest sessions of the Munich medical society, Professor Dieudonné announced that the mortality from tuberculosis in Bavaria had materially improved. In general the mortality of infectious diseases in Bavaria has markedly diminished in the last few years, from 77.7 per cent. in the year 1877 to 38.4 per cent. for the year 1905, or reckoned for 10,000 inhabitants, from 270 to 187. But the records show that among the religious sisterhoods (*die barmherzigen Schwestern*), who are mostly engaged in nursing, 1,366 or 56.2 per cent. died of tuberculosis in the years from 1899 to 1908. As to the methods of infection by tuberculosis, a number of cases have been observed in Bavaria in which children lived for a long time exclusively on raw milk from cows with tuberculosis of the udder without becoming sick. In one case the calf of a cow with diseased udder perished from bovine tuberculosis (*Perlsucht*) while two persons who drank the same milk at the same time remained healthy. As to the question of inhalation and intestinal tuberculosis, the result of experiments has shown that a primary tuberculosis from feeding may be brought about, but that a much larger number of bacilli are necessary than in the case of infection by inhalation. The number of bacilli necessary to produce disease by inhalation and by feeding stand in the relation of 62 to 6,000,000. The bovine type was never found in the sputum of adults.

Marriages

- DAVID I. MACHT, M.D., to Miss Sarah Adler, both of Baltimore, September 5.
- JOHN CHARLES FALK, M.D., to Miss Ida Cartman, both of St. Louis, September 8.
- THOMAS P. LYNAM, M.D., to Miss Mary Ellen Boyle, both of Chicago, September 14.
- FREMONT C. KNIGHT, M.D., Waukegan, Ill., to Miss Iva M. Fischer of Chicago, September 6.
- JOHN E. MCARDLE, M.D., to Miss Henrietta Grimme, both of Fort Wayne, Ind., September 6.
- RANLPH HUDSTON, M.D., to Miss Ethel Jean Simpson, both of Denver, Colo., September 7.
- CLYDE WHITNEY DICK, M.D., Wilcox, W. Va., to Miss Mattie Ellen Selfe of Tazewell, Va., July 14.
- ANGELO JOHN SMITH, M.D., to Miss Lucy Stuart Bradley, both of Yonkers, N. Y., September 8.
- WILLIAM H. THEARLE, M.D., U. S. Army, to Miss Bertha Mills of Waynesboro, Pa., September 5.
- WILLIAM J. WILLS, M.D., Sedalia, Mo., to Miss Lulu E. Nichols of Springfield, Mo., September 1.
- GEORGE WILLIAM MILLER, M.D., Norristown, Pa., to Miss Mary E. Platt of Philadelphia, September 10.
- JULIUS HENRY POWERS, M.D., Saginaw, Mich., to Miss Lenore M. Beattie of Ionia, Mich., September 5.
- IRA NORMAN GATES, M.D., Panama, Canal Zone, to Miss Bessie Annis of Kennewick, Wash., August 30.
- GEORGE BRUCE LEMMON, M.D., Springfield, Mo., to Miss Mary Eugenia Harrell of Pasadena, Cal., September 8.
- JACOB WHEELER BIRD, M.D., Sandy Springs, Md., to Miss Mary McIntire Wilson of Centreville, Md., September 7.
- CLINTON KITTO SMITH, M.D., Alamosa, Colo., to Miss Jane Esther Thayer of Evanston, Ill., in St. Louis, September 7.

Deaths

Edward Ely Van De Warker, M.D. Albany (N. Y.) Medical College, 1863; chairman of the section on obstetrics and diseases of women of the American Medical Association in 1887; formerly assistant surgeon and surgeon of the One Hundred and Sixty-second New York Volunteer Infantry; surgeon in chief of the Third Brigade First Division Nineteenth Army Corps; medical director of the First Provisional Division of Georgia, and chief medical officer of the District of the Ocmulgee during the Civil War; formerly president of the Onondaga County Medical Society, Central New York Medical Society, Syracuse Medical Society, and Syracuse Academy of Medicine; a member of the American Gynecological Association; surgeon to the Central New York Hospital; senior surgeon to the Woman's and Children's Hospital, and consulting surgeon to St. Anne's Maternity Hospital; formerly school commissioner; died at his home in Syracuse, September 6, aged 68.

Marcus Rosenwasser, M.D. University of Würzburg, Germany, 1867; a member of the American Medical Association; formerly professor of diseases of women in Wooster University Medical College, and afterwards at the College of Physicians and Surgeons, Cleveland; once vice-president of the American Association of Obstetricians and Gynecologists; gynecologist to the Cleveland General and Mount Sinai hospitals; consulting gynecologist to the City Hospital, and physician to the Jewish Orphan Asylum; during 1901 and 1902, president of the local board of health; died at his home in Cleveland, September 4, from angina pectoris, aged 64. At the funeral services, held September 6, Drs. George W. Crile, John H. Lowman, Charles F. Hoover, and Charles B. Parker, former colleagues of Dr. Rosenwasser, acted as honorary pallbearers.

Siméon Starkweather French, M.D. Geneva (N. Y.) Medical College, 1842; for many years a member of the American Medical Association; formerly president of the Michigan State Medical Society, Calhoun County Medical Society, Battle Creek Academy of Medicine, and Kalamazoo Academy of Medicine; for three years surgeon of volunteers during the Civil War; local surgeon of the Grand Trunk Railroad for eighteen years; for twelve years health officer; two terms mayor, one term alderman, two years superintendent of schools, eight years inspector of schools, and four years

supervisor of Battle Creek, Mich.; who is said to have presented the resolutions which resulted in the "Under the Oaks" meeting at the organization of the Republican party; died at his home in Battle Creek, September 10, aged 94.

Sidney L. Theard, M.D. Tulane University, New Orleans, 1891; a member of the American Medical Association; in 1898 appointed sanitary officer of the State Board of Health, and a few months later made secretary, sanitary officer and treasurer of the New Orleans City Board of Health, holding these offices up to the time of his death; died at his home September 5, from paralysis, aged 42. The funeral was attended by more than fifty members of the parish medical society, and the mortuary committee of that association acted as honorary pallbearers.

James Donnelly, M.D. University of Michigan, Ann Arbor, 1883; a member of the American Medical Association; associate professor of surgery in and dean of Toledo Medical College; local surgeon in Toledo for the Lake Shore and Michigan Southern Railway, and the city fire department; a member of the school board for several terms; United States pension examiner for the district; died in St. Vincent's Hospital, Toledo, September 4, from typhoid fever, aged 53.

Adam B. Dundor, M.D. Jefferson Medical College, 1864; a member of the American Medical Association, and American Academy of Medicine; for about twenty-five years a member of the board of health of Reading, Pa., and president of the board for nine years; one of the founders and a member of the staff of the dispensary and Reading Hospital for nearly a quarter of a century; died at his home in Reading, September 3, from paralysis, aged 72.

Emory M. Lyon, M.D. University of Vermont, Burlington, 1862; a member of the Medical Society of the State of New York, and formerly president, secretary, and treasurer of the Clinton County Medical Society; health officer of Plattsburg, a member of the pension board for eighteen years, and surgeon for the Home for the Friendless; a veteran of the Civil War; died at his home in Plattsburg, September 7, aged 74.

Stephen Albert Russell, M.D. University of Buffalo (N. Y.) 1871; a member of the American Medical Association; city physician and health officer and alderman of Fulton, N. Y.; attending physician to the City Hospital, and consulting physician to the Oswego County Hospital; local surgeon for the New York, Ontario and Western Railroad; died at the Lee Memorial Hospital, Fulton, September 5, from cerebral edema, aged 60.

John Troutman, M.D. Missouri Medical College, St. Louis, 1877; of Kansas City, Kan.; a member of the American Medical Association, and American Electrotherapeutic Association; a member of the medical staff of Bethany Hospital, Kansas City, Kan.; professor of electrotherapeutics in the Kansas State University; died at his old home in Wooster, Ohio, September 4, after a surgical operation, aged 65.

Francis Hart Stuart, M.D. Long Island College Hospital, Brooklyn, 1873; a member of the American Medical Association and American Academy of Medicine; formerly president of the Brooklyn Pathological Society; obstetrician to the Brooklyn Hospital; died at his home in that city, September 4, from heart disease, aged 64.

J. A. Gray, M.D. Toronto School of Medicine, 1872; for many years coroner for the county of Peterboro, Ont., and local surgeon for the Canadian Pacific Railway at Peterboro; fell from a window of his house, June 14, and sustained injuries from which he died in the Nicholls Hospital, June 14.

Joseph Orpheus Lieuellen, M.D. Starling Medical College, Columbus, Ohio, 1898; a member of the American Medical Association; died at his home in Maineville, Ohio, September 5, from the effects of a gunshot wound of the head, self-inflicted it is believed while despondent on account of illness, aged 36.

William Henry Path Evatt, L.R.C.S., Ireland, 1879; of Chicago; a member of the Illinois State Medical Society; while walking on the tracks of the Metropolitan Elevated Railroad, September 12, was struck by a train and received injuries from which he died a few hours later, aged 55.

Sturley C. Fetzer, M.D. Western Pennsylvania Medical College, Pittsburg, 1904; of Sheridan, Pa.; a member of the Chartiers Valley Medical Society; died in the Allegheny General Hospital, September 3, from appendicitis for which four operations had been performed, aged 28.

Louis Edmonds, M.D. Harvard Medical School, 1893; of Boston; a member of the American Medical Association; superintendent of Penikese Hospital for Lepers for more than

two years; died in the City Hospital, Boston, September 1, from cancer of the stomach, aged 64.

John Conway Rogers, M.D. Harvard Medical School, 1864; vice-president of the Washington County (Maine) Medical Association; assistant surgeon in the army for one year during the Civil War; died at his home in Pembroke, August 22, from heart disease, aged 75.

William Robert Wall, (license, Iowa, 1886): a member of the Iowa State Medical Society; a veteran of the Mexican and Civil wars; for more than forty years a practitioner of Montonville, Iowa; died suddenly at his home, September 4, from heart disease, aged 88.

Emil Wahl, M.D. University of Leipsic, Germany, 1884; a member of the American Medical Association; one of the best known practitioners of Milwaukee; accidentally shot and killed himself in a boat while hunting at Muskego Lake, September, 9, aged 48.

Lydia Sayre Hasbrouck, M.D. New York Hygieo-Therapeutic College, New York City; for nearly half a century a practitioner; a lecturer and pioneer in the dress-reform movement; died at her home in Middletown, N. Y., August 27, aged 83.

John W. Dashiell, M.D. University of Maryland, Baltimore, 1843; one of the oldest and most widely known practitioners of Somerset county, Md.; for several years town commissioner of Princess Anne; died at his home in that town, September 4, aged 93.

John Edmond Faber, M.D. Washington University, St. Louis; 1869; a member of the Missouri State Medical Association; while working in the laboratory of his son in St. Louis, September 5, died suddenly from cerebral hemorrhage, aged 78.

Stuart Arthur Ashton, M.D. University College of Medicine, Richmond, Va., 1907; of Colonial Beach, Va.; a member of the Medical Society of Virginia; died in Garfield Hospital, Washington, September 9, from anterior poliomyelitis, aged 25.

James Henry McNerny, M.D. Yale University, New Haven, 1891 of New York City; assistant surgeon of the New York General Memorial Hospital; died at his summer home in Mount Vernon, September 5, from heart disease, aged 50.

Nathaniel T. Dulaney, M.D. Jefferson Medical College, 1856; formerly president of the Tennessee State Medical Association; and for six years a member of the state legislature; died at his home in Bristol, September 3, aged 76.

Morris Clifford Hutton, M.D. University of Kansas, Kansas City, 1906; of Kansas City, Kan.; physician to the Swift Packing Company; died from gangrene at the Bell Memorial Hospital, Rosedale, Kan., August 31, aged 26.

John P. Malcolm (license, Delaware); for thirty-five years a practitioner of Wilmington; at one time coroner's physician and for several terms city vaccine physician; died at his home, September 7, from paralysis, aged 61.

William Howell Drake, M.D. Victoria College, Coburg, Ont., 1857; a member of the College of Physicians and Surgeons of Ontario; died at his home in Windsor, September 6, from arteriosclerosis, aged 78.

James A. Atkisson, M.D. University of Nashville, 1880; a member of the American Medical Association; local surgeon at Morehouse, Mo., for the Frisco System; died at his home, September 1, aged 54.

William M. Yater, M.D. Tulane University, New Orleans, 1885; a member of the State Medical Association of Texas; died suddenly at his home in Cleburne, September 9, from heart disease, aged 47.

Homer K. Castle, M.D. Eclectic Medical University, Kansas City Mo., 1903; a practitioner for twelve years; died at his home in Kansas City, September 5, from heart disease, aged 61.

Sarah Elizabeth Wilder, M.D. Boston University School of Medicine, 1879; of Dorchester, Boston; died recently at her summer home in Agawam, Mass., from cerebral hemorrhage, aged 74.

Edward D. Yeates, M.D. Tulane University, New Orleans, 1870; of Starkville, Miss.; a Confederate veteran; died at the home of his son in Grenada, Miss., September 1, aged 65.

Ferdinand A. Steffen, M.D. University of Greifswald, Germany, 1882; died at his home in College Point, Long Island, N. Y., September 9, from cerebral hemorrhage, aged 56.

William Thomas Evans, M.D. Tulane University, New Orleans, 1871; a member of the State Medical Association of Texas; died at his home, in Jewett, May 28, aged 69.

Pharmacology

STRYCHNIN ARSENATE REFUSED RECOGNITION

Report of the Council on Pharmacy and Chemistry

The Council, after considering the advisability of admitting to New and Nonofficial Remedies the unofficial, non-proprietary preparation, strychnin arsenate, decided not to admit it, and authorized publication of the following report.

W. A. PUCKNER, Secretary.

Strychnin arsenate is a compound of the alkaloid strychnin with arsenic acid, containing between 68 and 70 per cent. of anhydrous strychnin. It is a white, crystalline powder of small, colorless or faintly yellowish, transparent or slightly opaque prisms, or in white acicular crystals, odorless but extremely bitter. It is slowly soluble in about 20 parts of water at 25 C., more readily soluble in hot water, slightly soluble in alcohol, insoluble in chloroform or ether.

After considering the properties of this substance the Council voted not to accept it for N. N. R., as there is no sufficient reason for combining two powerful remedies in such form. As a chemical combination there appears to be no objection to it, as the compound is sufficiently definite, but the readiness with which the salt separates into its constituents, strychnin and arsenic acid, indicates that it can present no advantages over a mixture of its components so far as pharmacologic action and therapeutic use are concerned. On the other hand, it is both unscientific and irrational to prescribe two such energetic remedies having quite different indications under such a fixed form that the efficient dose of one may involve an unsuitable and perhaps dangerous dose of the other.

If a dose of strychnin arsenate equivalent to 0.002 gm. (1/32 grain) of strychnin sulphate is given, the patient would receive about 0.00063 gm. (1/100 grain) of arsenic acid, which is about one-fifth the official dose. On the other hand, strychnin arsenate cannot be used to bring out the therapeutic effects of arsenic in cases in which it is necessary to push the latter remedy, because this would necessitate the giving of dangerous doses of strychnin. A much more appropriate and scientific procedure would be to prescribe the medicines separately or in an extemporaneous pill or solution in which the proportions of the two ingredients could be changed from time to time according to the varying indications in the particular case.

FRUITOLA

Olive Oil and Seidlitz Powders as a Fake Gallstone Cure

The quack and the exploiter of "patent medicines" revel in the spectacular; any unusual property possessed by a drug, whether as a physical characteristic or in pharmacologic action, is quickly utilized by the nostrum vender for his financial profit.

For years an enterprising faker who advertised a "cure" for Bright's disease sent out small vials—free—containing a weak solution of silver nitrate. The victim was instructed to make a "uranalysis" by adding the contents of the vial to a small quantity of his urine. "If a white precipitate follows," wrote the quack, "you have Bright's disease!" As the chlorides naturally present in every urine caused a precipitate the layman was duly impressed with his dangerous (?) condition and bought the "cure."

Another bright mind took advantage of the physical properties of an acidulated solution of quinin sulphate. This solution, as all physicians know, has a very decided fluorescence, and the somewhat uncommon appearance was ascribed by the medical faker to radium. This "radium solution" was sold at an outrageously high price as a "sure cure" for cancer.

For many years the kidney disease "curer" has taken advantage of the power of methylene blue to color the urine of the person taking it, and no doubt thousands of laymen ignorant

of this property have been frightened by its use into believing that the integrity of their kidneys was seriously impaired.

Of more recent origin is what may be called the "fake gall-stone trick" which is now being industriously worked in many parts of the country. Originally operated by traveling fakery, it has lately been adapted to the exigencies of the "patent medicine" industry. The principle on which this fake depends is the well-known fact that giving a patient massive doses of some bland oil will result in the passing of soapy concretions. These lumps, greenish in color and of varying sizes, are easily mistaken by the layman for "gallstones."

There are several modifications of this "gall-stone cure" fake, but the most widely advertised is that sold by the Pinus Medicine Company of Los Angeles under the name "Fruitola." It is usually exploited in connection with another nostrum—"Traxo"—put out by the same concern. Many physicians have written to THE JOURNAL, telling the experiences of some of their patients who had taken "Fruitola" for the "removal of gallstones." The following from Dr. James C. Gill of Chicago is typical:

"I am sending an advertisement of a 'patent medicine' called 'Fruitola,' which has been extensively advertised for some time. The fraudulent character is so evident that it is a great imposition on the public to allow such a fraud to be perpetrated. I am also sending what they claim to be able to rid the system of, namely, 'gallstones' (3).

"One of my patients, a young woman, took the contents of this bottle, as well as the powders which accompany the liquid as part of the treatment. Several hours after taking the medicine there were several painful evacuations, in which there appeared a large number, probably two dozen or more, small greenish masses about the size of an ordinary garden pea. The young woman was very much frightened, thinking that they were really gallstones and that she was in a serious condition."

Of course the "gallstones" were simply soapy concretions that usually follow the administration of massive doses of oil.

"Fruitola" consists of an 8-ounce bottle of oil and six powders, four of the latter being in blue papers and two in white. The following directions are given on the bottle:

"At 3 o'clock in the afternoon, dissolve the contents of two blue papers in a half glass of water, add the contents of one white paper and drink. At bed-time squeeze a little lemon juice into a glass, pour in the contents of the bottle, squeeze a little lemon on top and drink at once. Keep a little lemon near in case it shows a tendency to rise.

"As early as possible in the morning take the rest of the powders. When the medicine operates use a vessel partly filled with water, pour in more water or stir the contents, and the gallstones will float on top in the shape of dark green lumps, varying in size from a pin head to a hickory nut, in bad cases even larger."

To determine the character of the oil and the composition of the powders an analysis of "Fruitola" was made in the Association laboratory. The chemists' report follows:

LABORATORY REPORT

An original package of "Fruitola" purchased on the open market was submitted to the Association laboratory for examination. The accompanying labels [One of these labels is reproduced on this page.—Ed.] appeared on the carton and bottle.

Other labels describing the use of the preparation were also on the bottle. The carton contained besides the bottle, two sets of powders, one set wrapped in white, and the other in blue paper.

The bottle contained a transparent amber-colored oil, having an odor of anise and a bland taste. From its physical

properties and chemical composition it was concluded that the substance was olive oil, flavored with a trace of anise.

The powder in the white papers was subjected to chemical tests, and found to be tartaric acid. The identity of the constituents and their quantitative estimation indicated that the powder in the blue papers was a mixture of approximately one part sodium bicarbonate and two parts Rochelle salts—sodium potassium tartrate.

From the foregoing it is concluded that the liquid portion of "Fruitola" is olive oil flavored with anise while the powders accompanying the liquid are the well-known seidlitz powders.

CONCLUSION

Here, then, we have the fake in a nutshell: Olive oil and seidlitz powders. That this combination will produce a good imitation of what the average man imagines to be gallstones is undoubtedly a fact. A thorough cleansing of the intestinal tract by means of laxatives not too drastic in action will produce a temporary feeling of well-being in a person who is chronically constipated, and this fact alone should make it easy for the exploiters of "Fruitola" to get all the "testimonials" they want.

That persons should be misled of a dollar, however, for the privilege of having their bowels moved and being made into a peripatetic soap factory may seem humorous—but it is an outrage nevertheless. To such as wish to make the experiment—and it is one that is by no means free from danger in all cases—we would suggest the following procedure as equally efficacious and much less expensive: Buy 20 cents' worth of olive oil and a nickel's worth of seidlitz powders. You then have all the paraphernalia necessary for the production of home-made gallstones. All that is required is to take the oil and powders and then practice watchful expectancy. The expected will happen.

1. The oil was insoluble in alcohol but soluble in chloroform. The saponification number of the oil was found to be 190.6. This with the other properties of the oil indicated that it was olive or cotton-seed oil. Identity tests were made indicating the absence of cotton-seed oil and suggesting olive oil. As a further check the iodine absorption number was measured and found to be practically that of olive oil.

2. The contents of the powders in the white papers weighed 4 gm. each. The substance was white in color, odorless, with an acid taste and readily soluble in water. Ignition caused decomposition and combustion of the powder and an odor of burnt sugar. The aqueous solution of the powder was acid in reaction and appeared to be free from metallic elements. These properties suggested some solid organic acid. This substance responded to identity tests for tartaric acid. As a verification, quantitative estimations were made and the substance found to be tartaric acid.

3. The contents of the powders in the blue papers weighed 8 gm. each. The substance was found to be a white, odorless powder, soluble in water and having at first a cooling and then a bitter-salty taste. The aqueous solution of the powder effervesced on the addition of acid. Qualitative tests indicated the presence of sodium, potassium, carbonate and tartrate. The presence of other metals or acid radicals could not be demonstrated. The tests indicated the powder to be a mixture of a bicarbonate, probably sodium bicarbonate, and a tartrate, probably sodium potassium tartrate. Titration of the aqueous solution of this powder required an amount of standard acid equivalent to approximately 33 per cent. sodium bicarbonate. To check this estimation and also to determine whether or not the other constituents were present in the proportions to form sodium potassium tartrate, the substance was converted to carbonate by charring, the char leached, and the aqueous solution titrated with standard acid. The quantity of standard acid required in the direct titration was subtracted from the total acid used, leaving the quantity of acid required to neutralize the carbonates formed by charring. The acid thus required for the carbonate corresponded to approximately 66 per cent. sodium potassium tartrate. Showing the powders in the blue papers to be a mixture of one part sodium bicarbonate and two parts sodium potassium tartrate.

FRUITOLA

(TRADE MARK REGISTERED)

—A—

SYSTEM CLEANSER

Recommended For

GALL STONES AND Stomach Trouble

Price: \$1.00 per Bottle

Prepared And Sold Only By

Pinus Medicine Co.

620-622-624 W. 9th St.

Los Angeles, California

TELEPHONE HOME F. 5808

GUARANTEED

by Pinus Medicine Co., under Food
and Drugs Act of June 30, 1906.
Serial No. 102.

Registered in Canada under the Proprietary or Patent Medicine Act.
No. 1576.

Photographic reproduction of label from a bottle of "Fruitola."

ODOL

A correspondent asks for the formula of "Odol," a somewhat expensive English toothwash. It is advertised to an enormous extent in Great Britain, but has not as yet been given any great degree of publicity in this country. It has been claimed that the preparation is a by-product of the salol factories, though this has been denied. Formulas representing the results of various analyses have appeared in German pharmaceutical journals, and the following, by Aufrecht, is from Hager's *Handbuch der Pharmaceutischen Praxis, Ergänzungsband*, Ed. 1908.

Alcohol	\$9.00 per cent.
Water	8.00 per cent.
Menthol	2.00 per cent.
Saccharin	0.05 per cent.
Peppermint oil	0.05 per cent.
Clove oil	0.10 per cent.
Salol-like substance	0.05 per cent.

Correspondence

Hexamethylenamin in Poliomyelitis

To the Editor:—The article in THE JOURNAL, September 17, has crystallized my intention to send you a suggestion in regard to the treatment of the epidemic anterior poliomyelitis. There can no longer be any question as to the nature of this disease, undoubtedly an infection localizing in the spinal canal. The well established fact that hexamethylenamin is excreted or secreted in the cerebrospinal fluid suggests its possible use in this disease.

Within the past few weeks I have seen two instances of this disease, shortly after the onset of paralytic phenomena and have given large doses of urotropin (hexamethylenamin). In neither instance did the paralysis extend and both patients made good recoveries.

It is superfluous to say that nothing can be concluded from such an experience, but in view of our desperate helplessness in such cases, a drug, backed as hexamethylenamin is by some experimental work, may be tried.

ROBERT B. PRERLE, Chicago.

Medical Bibliography

To the Editor:—Medical bibliography is a subject of which the average practitioner knows little, and cares less. Yet with the constantly increasing mass of medical literature, and the growing army of investigators, some familiarity with what is being done in medical science is highly desirable to every intelligent member of the profession, and indispensable to any one who is attempting to do original work. The lack of this knowledge has often led to much that is both laughable and tragic in the breathless announcement, by men whose enthusiasm has outrun their learning, of facts already old and well known.

We must first of all realize that the living, growing body of medical science is in its periodical literature, and that text-books are only imperfect abstracts or summaries made for convenience, by which some acquaintance with certain facts is made possible for those to whom the more extended sources of information are inaccessible, or to whom more detailed knowledge is unnecessary. Medical literature at large, that is, in what may be called its raw state, contains a large mass of very diverse material; some of it no more than a gathering together of common-places; some of it a valuable generalization from known facts, and some of it, first-hand additions to scientific knowledge. A reference is usually made for the purpose of giving the authority for some statement, or a series of references, forming a "bibliography," for the purpose of giving the sources from which the present state of knowledge about a given subject has been derived. The proper work of the bibliographer is to digest the raw material of medical literature and to eliminate that which is irrelevant and useless, so that in the end, his "bibliography" may be complete in all essential particulars,

carrying no waste matter to confuse future students and squander their time.

In order that this may be done most effectively, and with the utmost economy in labor and time both to the bibliographer and student, certain conventions as to the form and arrangement of references should be adopted. It would be well if we could all agree that all references appearing in medical literature should be made to conform to the type or form adopted by the *Index Medicus* (e. g., Doe, (J.). The functions of lymphoid structures, *Amer. Jour. Physiol.*, 1909, xx, 617.) Where the author has examined the original of the references, this would always be possible, and it would materially facilitate their use. Second-hand references, those which a writer incorporates in a bibliography on the authority of some other person, knowing nothing personally of their content or accuracy, should be marked in some distinguishing fashion.

I have before me a reprint, just received, from a young and brilliant colleague, containing the account of some interesting original researches. A bibliography is appended, containing about 500 references. Of these, not one gives the title of the paper referred to; many give no page numbers; many give no year of publication, and many others fail to give the volume. The verification of such a bibliography, even if one were in the Surgeon-General's Library, would be an interminable labor. On the whole, it looks more like a purely ornamental addendum to the simple account of some scientific investigations, than like anything of real assistance to future students.

If our medical colleges could add to their courses a few lectures on the use of medical literature, or a definite course in bibliographic research, it would be not only of immense value but of fascinating interest to all so fortunate as to participate. We should soon have a class of medical graduates whose horizon would not be limited by the text-books they used in college and what their professor said.

And, finally, medical editors have at their command the most powerful means of improving the whole situation, not only by the publication of "Indexes," as some now do, nor by abstracts of current medical literature, which is most useful, but by educating their contributors and readers in addition, to that accuracy and uniformity in bibliographic matters which would eventually be helpful to us all.

HAROLD WILSON, Detroit.

[COMMENT:—The failure of authors to give complete bibliographic references, accurately and uniformly, constitutes one of the trials of the editor. THE JOURNAL has prepared a pamphlet on "Bibliographic Style" to which all references in THE JOURNAL and in *The Archives* are made to conform. Authors generally fail to follow any consistent system in preparing their references to other articles. In some cases, doubtless, it is too much to expect that they shall provide every detail. It is a far different matter, however, for an author to have his stenographer copy on his manuscript a lot of references that he finds tacked on some other article on the same subject. Often this seems to have been done without verification, without completion, without any reason apparent save the desire to have a bibliography with the article. Some one has said that this ought to be made gross unprofessional conduct—a sentiment with which many will sympathize who have tried to make use of such an abomination.—Ed.]

Maritime Quarantine.—In Bulletin 34 of the Public Health and Marine-Hospital Service the facts of maritime quarantine practice are arranged in a compact and interesting form. The boarding, inspection and judgment of vessels, quarantine treatment, station management, descriptions of stations, duties of officers, disinfection and disinfectants, apparatus, etc., are all concisely described and freely illustrated with half-tones. It contains valuable information not only for the maritime quarantine service, but for sanitarians and health officers generally.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ARGYLL ROBERTSON—A BIOGRAPHIC NOTE

To the Editor:—Please give a brief account of Argyll Robertson.

ANSWER.—Douglas Argyll Robertson was born at Edinburgh in 1837, his father being a distinguished surgeon. He received his medical training in Edinburgh and St. Andrews, from which latter university he graduated in 1857. He then studied ophthalmology in Prague under Arlt, and in Berlin under Graefe. He took the fellowship of the Edinburgh College of Surgeons in 1862. In 1867 he was appointed assistant ophthalmic surgeon to the Royal Infirmary; in 1870 he was made co-equal with his senior colleague, Mr. William Walter, and in 1882 had for a time sole charge of the ophthalmic department. He continued to hold the senior post until his hospital retirement in 1897, when he was appointed consulting ophthalmic surgeon. Dr. Robertson was president of the Royal College of Surgeons in 1886; in 1893 and 1894 he was president of the Ophthalmological Society of the United Kingdom. In the latter year he was also president of the International Congress of Ophthalmology which met at Edinburgh. He was surgeon oculist in ordinary in Scotland to Queen Victoria and to King Edward. In 1896 the university of Edinburgh conferred on him the degree of LL.D. Robertson's contributions to ophthalmology were many, and several were of the first importance. In 1863 appeared his paper on the Calabar bean, and in 1869 and 1870 his papers on spinal myosis, in which he described that condition of the pupil which has since been known by his name. He was a first-class operator and an excellent teacher. He was also a good shot, but golf was his chief recreation. In 1904 Dr. Robertson gave up practice and returned to his seat, "Mon Plaisir," in Jersey, dying Jan. 3, 1909, at Gondal, India, while on a visit to the Thakur of Gondal. (*Ophthalmic Review*, February, 1909, p. 59, with portrait. See also abstract in the "Ophthalmic Year-Book," Vol. VII, 1910.)

STAINS DESCRIBED BY GIEMSA AND LEVADITI

To the Editor:—Please give me the formula and the technic for Giemsa's stain and for Levaditi's stain.

LYNN M. BARNES, M.D., Decatur, Ill.

ANSWER.—1. The formula of the Giemsa stain is as follows:

Azur II eosin.....	3 gm.
Azur III.....	0.8 gm.
Glycerin.....	250 c.c.
Methyl alcohol.....	250 c.c.

Smears from chancres, etc., are fixed for ten minutes in absolute alcohol. The preparations are then stained in a dilute solution of the Giemsa stain (made by adding one drop of Giemsa stain to 1 c.c. of distilled water, and rendering alkaline with a few drops of 1 per cent. solution of potassium carbonate) for from two to twenty-four hours or in the undiluted stain for from one-half to six hours. Afterward they are washed in distilled water, dried and mounted.

2. Levaditi's method may be employed for sections: (1) Fix pieces of tissue about 1 mm. thick in 4 per cent. formaldehyd solution, 1 part of liquor formaldehyd to 9 parts water, for twenty-four hours. (2) Wash in water and harden in 95 per cent. alcohol for twenty-four hours. (3) Wash in water for some minutes (until pieces sink). (4) Place in 3 per cent. silver nitrate solution at 37 C. for from three to five days in the dark. (5) Wash in distilled water for some minutes, and then place in the following solution at room temperature for from twenty-four to forty-eight hours:

Pyrogallol.....	2 to 4 gm.
Formaldehyd solution.....	5 c.c.
Distilled water.....	100 c.c.

(6) Wash in distilled water, dehydrate in absolute alcohol, clear in xylol, embed in paraffin, cut, and mount.

PAINLESS INSERTION OF HYPODERMIC NEEDLE—ORIGIN OF TERM "STONE BLIND"

To the Editor:—If the skin of the arm, etc., be carefully inspected, especially after lightly brushing it with the palm of the hand, a minutely mottled pink and white coloration will be noted. The nerve supply of the body is everywhere closely related to the blood-vessels, even to capillary distribution, hence the white blotches are poorest in nerve tissue and therefore least susceptible to pain. If these white areas be the points of choice and the needle be applied perpendicularly to the surface of the skin little or no pain will be experienced.

Referring to the note at the foot of page 848 of THE JOURNAL, September 3, about the origin of the popular term "stone blind," should we not look to a popular source for the explanation of such terms rather than to the medical literature? The lay mind knows little or nothing of glaucoma, but has always been familiar with the eyes of marble statuary that see not, and the sculptured ears of stone that hear not, and the unfeeling rocks in general. Should we not therefore look to this fact for the origin of such terms as "stone hearted," "stone deaf" and "stone blind" rather than to the far fetched suggestion in the footnote referred to?

E. B. KNAPP, M.D., Kansas City, Mo.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Sept. 17, 1910.

Tenney, Elmer S., M. R. C., September 9, granted leave of absence for twenty days, terminated not later than Nov. 3, 1910.

Martha Shelley U., M. R. C., September 9, relieved from duty at Camp of Instruction, Fort Benjamin Harrison, Ind., about Sept. 15, 1910, and will return to his proper station, Fort Des Moines, Iowa.

Bierbower, Henry U., M. R. C., September 9, ordered to proceed to Fort Benjamin Harrison, Ind., for duty with the Sixth Cavalry, at Camp of Instruction.

Schneider, C. R., major, September 9, on the abandonment of Fort Walla Walla, Wash., will proceed to Boise Barracks, Idaho, for duty at that station.

Chen, F. M. C., major, September 9, granted leave of absence for one month.

McLown, Thomas B., M. R. C., September 11, left Fort Barrancas, en route to Fort Dade, Fla., on temporary duty.

Rundesen, H. N., M. R. C., September 11, left Fort D. A. Russell, Wyo., on fifteen days' leave of absence.

Sherwood, John W., M. R. C., September 12, granted twenty days' leave of absence.

Knox, Howard H., lieutenant, September 12, granted 10 days' leave of absence.

Wallup, Joseph O., M. R. C., September 10, granted fifteen days' leave of absence.

Jackson, T. W., M. R. C., September 13, left Fort Hunt, Va., on ten days' leave of absence.

Cullen, Charles W., M. R. C., September 13, ordered to Fort D. A. Russell, Wyo., and granted two months' leave to take effect on arrival at station.

Barlett, William K., capt., September 12, granted five days' leave of absence.

Medical Corps, U. S. Navy

Changes during the week ended Sept. 17, 1910.

Loughbaugh, R. L., P. A. surgeon, commissioned passed assistant surgeon from May 4, 1910.

Donaldson, M., P. A. surgeon, detached from the naval hospital, naval home, Philadelphia, and ordered to duty at the naval hospital, Newport, R. I.

Reed, E. U., P. A. surgeon, detached from the Philadelphia and ordered to the Princeton.

Miller, J. T., P. A. surgeon, commissioned passed assistant surgeon from June 27, 1910.

Castaño, H., asst.-surgeon, detached from the Princeton and ordered to the Philadelphia.

Hermesch, P. A. surgeon, commissioned passed assistant surgeon from July 12, 1910.

McDowell, R. W., asst.-surgeon, discharged from treatment at the naval hospital, Norfolk, Va., and ordered to the Naval Medical School Hospital, Washington, D. C., for treatment.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Sept. 13, 1910.

McIntosh, W. F., surgeon, detailed as member of a Revenue-Cutter Service Retiring Board, Baltimore, Sept. 15, 1910.

Wertenbaker, C. P., surgeon, granted 1 month's leave of absence from Sept. 12, 1910.

Robinson, D. E., P. A. surgeon, granted 1 month's leave of absence from Sept. 8, 1910.

Gwyn, M. K., P. A. surgeon, detailed as member of a Revenue-Cutter Service Retiring Board, Baltimore, Sept. 15, 1910.

Portyjohn, Joseph, P. A. surgeon, granted 1 month's leave of absence from Sept. 15, 1910, on account of sickness.

Warner, H. J., asst.-surgeon, granted 7 days' leave of absence from Sept. 17, 1910.

Priebe, Paul, asst.-surgeon, granted 10 days' leave of absence from Sept. 8, 1910.

Grimm, R. M., asst.-surgeon, leave of absence for 4 days from Sept. 1, 1910, amended to read 4 days from Sept. 13, 1910.

Thompson, Lewis R., asst.-surgeon, directed to proceed to Chicago, and report to the Medical Officer in command for duty and assignment to quarters.

Bingham, E. O., acting asst.-surgeon, granted 15 days' leave of absence from Aug. 16, 1910, on account of sickness.

Horning, Henry, acting asst.-surgeon, granted 7 days' leave of absence from Sept. 6, 1910, under paragraph 210, Service Regulations.

Hume, Lea, acting asst.-surgeon, granted 5 days' leave of absence from Aug. 1, 1910.

Mason, William C., acting asst.-surgeon, granted 7 days' leave of absence from Sept. 18, 1910.

Sinclair, A. N., acting asst.-surgeon, granted 4 days' leave of absence from August 23, 1910, under Paragraph 210, Service Regulations.

Wallace, C. R., acting asst.-surgeon, granted 19 days' extension of leave from Aug. 3, 1910, on account of sickness.

Walkley, W. S., acting asst.-surgeon, granted 3 days' leave of absence from Sept. 16, 1910.

Dr. Lewis R. Thompson commissioned (recess) an assistant surgeon in the Public Health and Marine-Hospital Service, Sept. 6, 1910.

Board of medical officers convened to meet at the marine-hospital, San Francisco, Sept. 21, 1910, for the purpose of making physical examinations of officers of the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon R. E. Ebersole, chairman; Assistant Surgeon R. A. Kearney, recorder.

Board of medical officers convened to meet at the marine-hospital, Baltimore, Sept. 21, 1910, for the purpose of making physical examinations of officers of the Revenue Cutter Service. Detail for the board: Surgeon W. P. McIntosh, chairman; Passed Assistant Surgeon M. K. Gwyn, recorder.

Society Proceedings

COMING MEETINGS

Amer. Roentgen Ray Association, Detroit, September 28—October 1.
American Association of Railway Surgeons, Chicago, October 19-21.
Idaho State Medical Association, Boise, October 6-7.
Indiana State Medical Association, Fort Wayne, September 29-30.
Kentucky State Medical Association, Lexington, September 27-29.
Medical Association of the Southwest, Wichita, Kan., October 11-12.
Michigan State Medical Society, Bay City, September 28-29.
Minnesota State Medical Association, Minneapolis, October 6-7.
New Mexico Medical Society, Albuquerque, September 29—October 1.
Pennsylvania, Medical Society of State of, Pittsburg, October 3-6.
Utah State Medical Association, Salt Lake City, October 3-4.
Vermont State Medical Society, St. Albans, October 13-14.
Virginia, Medical Society of, Norfolk, October 25-28.
West Virginia State Medical Assn., Parkersburg, Oct. 5-7.
Wyoming State Medical Society, Casper, September 27.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Thirty-Sixth Annual Meeting, Held at Detroit, Sept. 13-15, 1910

The President, DR. FRANK P. NORBURY, Hospital, Ill., in the Chair

Pain in Abdominal Diseases

DR. WILLIAM M. HARSHA, Chicago: In order to interpret pain properly, a careful history is necessary as pain must be considered in relation to other factors in a given case, and without these it loses its chief importance. The relation of pain to taking food is also of great value, particularly in duodenal or gastric ulcer or the various stenoses, benign or malignant. The direction and extent of painful radiations and the association with hyperesthesia, local tenderness, and muscular rigidity are of great importance as indications of the site and gravity of the lesion. The arm pain in angina pectoris, the shoulder or upward radiation in gall-bladder disease and downward, forward, and testicular pain in nephritic colic are well-known examples. The pain of abdominal disease may be either spontaneous or elicited by pressure, body movement or position, and it may be influenced by psychical, thermic, mechanical or chemical means, all of which may be utilized in cases to aid in exact diagnosis. Diseased viscera cause pain at or near their various sites, but there are many exceptions which lend importance to the reflex or referred pains. A number of abdominal diseases, especially of the more acute variety, are first heralded by pain rather than by change of size, position, or other physical conditions. The surgeon can often gauge the urgency in a given case by the character and severity of pain. Taking cognizance of the value of pain associated with local distentions and peristalsis, or the absence of peristalsis, we may locate stenosis or other forms of obstruction, calling to our aid submerged palpation, or palpation in the bath, which will enable us to detect induration which is otherwise not palpable. By observing the time-relation of pain to other symptoms, the effect of food, drugs, cathartics, cold, fatigue, movement, position, jarring, fist percussion, anesthetics or electric stimulation, we should be able to increase the percentage of correct diagnoses.

The safety of abdominal section may have caused us to relax our efforts at exact diagnosis. It has frequently happened that laparotomy has been done for appendicitis when a movable kidney, pyelonephritis, ureteral stone, typhoid,

diaphragmatic pleurisy, salpingitis, or some other condition is present. Age, sex, occupation, or previous history may give valuable aid. In childhood intestinal troubles prevail, and we are likely to encounter appendicitis, intussusception, or tuberculosis, and in advanced age malignant disease. In women, the pelvic organs are frequent sites of disease, while gall-stones are frequent. Lead colic may simulate organic disease. A history of indigestion, with vague epigastric pain, may aid in determining a perforation of the duodenum or stomach, and a record of previous inflammatory trouble in the abdomen may explain a sudden intestinal obstruction. Among the less frequent conditions may be mentioned the meteorism with abdominal pain, resulting from the embarrassed portal circulation in cardiac insufficiency. I have recently seen a case of this kind in which the pain was so pronounced and distentions so great that abdominal tumor was suspected by one physician. We should consider the possibility of disease of the central nervous system, such as tabes, herpes, or hysteria, disease of the spine, as caries, or spondylitis deformans. We should also consider the possibility of disease of the thorax, referring pain and rigidity to the abdomen; or to one kidney referring the pain from stone to the kidney of the opposite side. Excluding pain from the cord, spine or reflex causes, we should remember that diseased viscera may be at the normal site, displaced especially by prolapse, or transposed. On the surgeon falls the burden of responsibility for exact diagnosis, as his operative experience should add to his knowledge.

DISCUSSION

DR. WILLIAM FULLER, Chicago: The man who can best interpret the significance of pain is the one who has suffered some pain. While I do not think it necessary to have all the acute abdominal diseases in which there is great pain to make a diagnosis, I think a little knowledge gained in a practical way helps out very much. Dr. Harsha's paper contains two excellent points: First, is the emphasis that he lays on the fact that abdominal pains may be severe from trivial abdominal affections; second, is his statement that very serious abdominal affections may be unattended by pain.

DR. CHANNING W. BARRETT, Chicago: When a patient complains of pain generally over the abdomen from appendicitis or gall-bladder trouble, we find frequently by putting the finger on the point that is affected, or supposed to be affected, and making a little pressure that the surrounding pain disappears. We can then go over the rest of the abdomen, and while the patient may complain of local pain, the rest of the pain is gone. An anesthetic is of great value sometimes in pelvic and abdominal cases, but I think we gain more knowledge of these conditions by examining the patient first without an anesthetic.

DR. L. W. BREMERMAN, Chicago: In diseases of the kidney or the ureter, I have seen cases in which there was hematuria, with marked pain over the region of the kidney, the kidney being felt on palpation, excessive tenderness over the kidney, a kidney lesion diagnosed, and surgical intervention recommended. On cystoscopic examination of the individual, I discovered that the hematuria was developing from the supposedly healthy kidney, the urine from the supposedly diseased kidney being normal. Every method of examination should be resorted to before an absolute diagnosis is made.

The Cause and Significance of Tubal Rupture in Extrauterine Pregnancy

DR. CHANNING W. BARRETT, Chicago, read a paper on this subject in which he drew the following conclusions:

1. Pregnancy, which is considered to be always extrauterine in the beginning, assumes pathologic significance when it undergoes ectopic attachment.
2. The ovum attached in the tube has a parasitic action, having a malignant tendency in that it destroys maternal tissues, embeds itself in the tube wall and tends toward death of the mother, but in "making its bed digs its own grave."
3. The growth of the ovum or enlargement of dead ovum mass together with the destruction and thinning of the tube wall leads to almost certain rupture of the tube.
4. The primary rupture may be partial and even slight, or it may be complete and even fatal.

5. If incomplete, a subsequent rupture or ruptures are the rule.
6. With rupture there is free hemorrhage more or less severe, which is never to be looked on lightly and which may prove fatal.
7. The loss of blood may be through one rapid fatal hemorrhage or there may be a series of lesser hemorrhages.
8. If the patient does not succumb to loss of blood the presence of the blood and the ovum in the abdominal cavity act as irritating, foreign substances leading to loss of function and pathological changes in the viscera, and perhaps to local or general infection, thrombosis, embolism, etc.
9. The dead ovum is only slightly less harmful from the standpoint of infection.
10. A study of the pathology makes all treatment looking toward killing the ovum appear irrational.
11. Patients in good condition with or without ruptures are almost certain to have future trouble and should have an operation as soon as is consistent with good work.
12. Patients in bad condition with concealed hemorrhage from the cause in question have collapse in proportion to the amount of blood lost, and rational treatment must look with certainty toward the stopping of further hemorrhage.
13. An opening of the abdomen with clamping or ligating of the vessels is the only reliable means of controlling internal hemorrhage and if done rapidly and with care is little tax on the patient.
14. The clinical experience of the world and a study of the pathology of this condition points to the danger of delay.
15. The more desperate the case while the patient yet lives, the greater the call for immediate action.

DISCUSSION

DR. EDWIN WALKER, Evansville, Indiana: I know of one death from repeated hemorrhages, but most of the deaths have been in delayed cases in which sepsis has occurred after operation. The teaching that we should wait in these cases is not sound. I feel that the position taken by Robb is untenable. These patients who have been operated on promptly in my experience have recovered.

DR. JOSEPH RILEY EASTMAN, Indianapolis: This is 1910, and it is a pity that it is necessary for Dr. Barrett to present a paper like the one he has read. The teaching that it is wise to allow a woman to bleed into her own abdomen, or into her tube or uterus, while the surgeon stands by with his arms folded and falls back on soft pillows or relies on Providence, is absolutely pernicious. If a vessel were bleeding on the surface of her body, what man would be so negligent or so indolent as to stand by and allow the patient to bleed to death?

DR. CHARLES STOLTZ, South Bend, Ind.: I think that the more energy we expend in teaching that these conditions are to be met and not dallied with the better. The men who have received the proper teaching will recognize these conditions, and they will usually find some one who is competent to meet the conditions speedily, or they may be competent to operate themselves, because if there is any delay, or if the patient is carried from one place to another, she may die. I would rather act on the theory that shock is hemorrhage, and hemorrhage is shock.

Special Points in Advanced Extrauterine Pregnancy

DR. SHELBY C. CARSON, Greensboro, Ala.: Although my experience is *nil*, I venture the suggestion that the operation for advanced extrauterine pregnancy be done in two stages when necessary or advisable, at an interval of from 48 to 60 hours, according to the judgment of the operator. In the first place, let the abdomen be opened, the child delivered, and the ovarian and uterine arteries clamped by rubber covered forceps, if they can be approached. In the second stage, separate the sac, release the blood-vessels after ligating the anomalous one, and closing the abdomen. Sometimes hysterectomy is imperative. This differs from and apparently is superior to the old method of uniting the sac to the incision and waiting weeks for its separation, since by this method the danger from sepsis is eliminated.

DISCUSSION

DR. J. H. CARSTENS, Detroit: I had one patient who went to term, a general practitioner having made the diagnosis. I operated on her in two stages. The placenta seemed to be attached to the intestines and the rectum, and I did not have the courage to remove it. I thought the best thing would be to leave the placenta alone, and so I removed the fetus, separated the peritoneum with the sac, and drained. The woman was septic at the time of operation, and finally died

from sepsis. The placenta did not separate. Little shreds came away through the abdominal incision.

DR. W. M. HANSEN, Chicago: I have never heard satisfactorily explained the cause of the intense pain that comes on in cases of tubal rupture. The extent of pain and the broad radiations of it are great in comparison to the very small area apparently involved. A woman with tubal rupture suffers pain from her chest to her thighs—sometimes, at least. The broad radiation with the intense character of the pain make it almost impossible to get from these patients a rational explanation or history. These are the cases in which I believe a good dose of morphin is indicated: First, it will abolish the cardinal or reflex pains to a certain degree and help to localize the trouble; second, it will limit the hemorrhage. Before administering morphin one should observe carefully the character of the pain, the extent of the radiations, the time, and the urgency of the condition. After recognizing these, morphin will answer two indications, namely, to relieve the shock and put the patient in a better condition for operation, and to some degree arrest the hemorrhage.

DR. CHANNING W. BARRETT, Chicago: In dealing with advanced extrauterine pregnancy we find that in the early months the ovum is not considered. The probabilities are that so far as the ovum is concerned it will die, and the chances are that it will kill the woman sooner or later. A few years ago, we would have said that at any time during the extrauterine pregnancy, early or late, the ovum should be removed at the earliest possible time. The teaching has been that if the ovum has passed the fifth month we should wait for viability. I would be inclined yet, even in spite of that teaching, to remove the ovum when found.

Acetabular Fracture With Intrapelvic or Central Dislocation of the Femoral Head

DR. WILLIAM FULLER, Chicago: So close is the relation between fractures and the changes that take place in the bone, whatever they may be, that all such injuries resulting from trivial or slight degrees of violence, or possibly in unusual fractures with greater degrees of violence, should be regarded as possibly belonging to this class. Efforts have been made by several observers to put the etiology of fractures on a physical basis by studying the mechanical capabilities of bone. The great strength of the pelvic bones, their peculiar and powerful articulations and liberal muscular supply, are factors which singly and combined contribute much to the neutralization of all forms of direct violence exerted on this portion of the body. While Katz's theory of the mechanism of certain acetabular fractures will probably hold good, it is also worthy of mention that the experiments of Kusmin demonstrated that this fracture could or would not occur unless the force be applied with the femur in abduction. When the legs were kept parallel the acetabulum remained unfractured. From impacted fractures of the femoral neck central dislocation of the femoral head may be differentiated by the age of the patient and the comparatively high degree of injury in the latter instance. The remarkably sunken appearance of the greater trochanter and its slightly altered relation to Nélaton's line are points which distinguish the dislocation. The certainty with which the femoral head may be palpated in either of the anterior dislocations of the femur and its increase in length in the thyroid dislocation will serve to differentiate any one of these dislocations from a central one. In the dorsal dislocation, especially one above the obturator internus tendon, the trochanter is far above Nélaton's line, the thigh is adducted, flexed, and the axis of the dislocated femur crosses the lower end of the opposite one. Moreover, in the simple dislocation all movements will be less free than when the head and neck occupy a central position. I do not intend that the symptoms of acetabular fracture given here are to minimize in the least the importance of the radiograph, but that each and every manifestation of all hip injuries of whatever nature should be carefully and cautiously considered. In no instance should the clinical findings settle the diagnosis, as they are frequently misleading, and the conclusions based thereon

should invariably be corroborated by the roentgenologist. In case of failure to replace the head of the femur within the acetabulum, operation may offer the only hope of satisfactorily dealing with such a condition; but the particular type of operation and the advantages to be gained by it will depend much on factors opposing the reduction.

Gastrostomy as a Curative Measure per se in Non-Malignant Strictures of the Esophagus

DR. JOSEPH RILUS EASTMAN, Indianapolis: The directly beneficial effects of gastrostomy in cases of so-called benign strictures of the esophagus are not generally appreciated. We have been too slow to break away from old notions, which were developed in the pre-aseptic era when the performance of gastrostomy was attended with considerable danger. Ewald, in discussing a report of successful dilatation of a diphtheritic stricture by Rosenheim, referred to a peculiar observation which he had made in dealing with such benign stenoses, namely, the remarkable circumstance that cicatricial strictures for which gastrostomy had been made nearly always improved steadily after the stomach fistula had been provided and food had been introduced through the fistula instead of through the gullet, that is, the stricture gradually developed a larger caliber without any other treatment whatsoever.

Ewald explained these phenomena in the following manner: After the gastrostomy is made it becomes possible to fill the stomach with food. The pull of the full stomach downward gradually stretches to some degree the elastic esophagus. When the stomach becomes empty the downward pull ceases, then the pressure of the food mass above the stricture has its effect on the stretch and more yielding strictured segment. More compact masses of food may then squeeze through. The explanation of the phenomena given by Ewald can hardly be applied to all cases. After the swallowing of a hot or caustic fluid, the mucosa of the gullet may become deformed in many ways. Among many interesting deforming processes are, for example, the complete tube cast-like separation of the mucous membrane described by Strauss, the esophagitis desiccans superficialis of Rosenberg, and esophagitis exfoliativa. In these conditions after the mucosa has become loosened from the underlying tissues and thrown into folds or ridges or pockets, it is easy to understand that the passage of food or of a bougie must be attended with great mechanical difficulty. It also seems fair to believe that the downward traction due to the filled stomach must have the effect in some instances of smoothing the valve-like folds and irregularities of the loosened membrane, thus permitting the passage of food through a previously impassable esophageal lumen. Gastrostomy is curative per se for another and more important reason. The rest afforded the esophagus is of the greatest value in allaying the inflammation which precedes or attends practically all benign strictures. If ulceration be present, the passage of food, or what is worse, the arrest of food, with consequent fermentation, must maintain or increase the activity.

Fracture-Dislocation of the Atlas and Axis

DR. CARL E. BLACK, Jacksonville, Ill.: Called attention to the essential diagnostic points and gave reasons why operative interference has not been adopted more frequently. He summarized the treatment of such injuries as follows:

Immediate reduction may be done under an anesthetic. Walton has his patient sit in a chair while he turns the head still farther from the dislocated side. The head is then tilted to the sound side and extended while the column is rotated back into place. Hueter's method by rotation may be used. When the atlas is dislocated, before any method of reduction is undertaken, we should be sure that the odontoid process is not fractured. If the odontoid process is fractured, we are advised by some to place the patient in a plaster cast which will immobilize the seat of injury until healing can take place, and then reduce the deformity. The objections to this plan are that it fails to give the patient any opportunity for relief before degenera-

tion of the cord can take place, and subjects him to further pressure from callus, and finally it will usually be found impossible to effect reduction after so long a time. Another plan is operative interference. While considerations of the cord are all important in such injuries, we should not be deterred from making every reasonable effort to restore the dislocated or fractured spinal vertebrae, because many questions regarding the degeneration and regeneration of the cord are in the stage of controversy and remain unsettled. It would seem to be our plain duty to effect a restoration of the bony column as far as it can be done without further endangering the cord, except in those cases in which the cord is hopelessly crushed beyond the possibility of the recovery of lost functions. The mechanical difficulties are great and often insurmountable, but perseverance with reasonable efforts to overcome them will certainly tell in time. It is a reasonable proposition that an injured cord has a better chance in a spinal canal with sufficient room than it has when held under even mild compression. From this reason, the second indication should usually be omitted and the injured parts exposed thoroughly. If the case is one of dislocation, efforts at reduction can be repeated under the direction of the eye and finger, and failing in this a laminectomy may be done.

Preparation Required for the Practice of General Surgery

DR. G. W. GREEN, Chicago: The public has a right to demand of the surgeon (1) a good foundation in the shape of a diploma from a good school; (2) considerable time spent with a master of surgery, so that he has the following knowledge: (a) sufficient experience to make a correct diagnosis; (b) sufficient experience to know what is the best to do when the diagnosis is made; (c) that he shall know just how to do the work and have enough practice to have a definite surgical technic of his own, so that he is capable of performing the operation he essays, or any complication which might arise from that operation, in an average length of time; (d) that his mortality shall be as low, and his postoperative results as good, as those of the average surgeon. In return the surgeon has a right to expect fair remuneration and respect from the public, but no more than any other member with equal qualifications, specializing in any other branch of this, one of the noblest professions on the face of the earth.

Tuberculosis of Bones and Joints

DR. EDWARD M. BROWN, Chicago: The treatment of tuberculous joint disease is (1) general or constitutional; (2) specific or serum treatment; (3) local. For practical purposes the local treatment may be divided into injection treatment, mechanical and operative. The advantages of operative treatment are: 1. The disease can at once be thoroughly eradicated, or nearly so that the patient easily overcomes the disease. 2. Dissemination of the disease is prevented. 3. The treatment is shortened. 4. The general condition of the patient rapidly improves. 5. The length of the limb and function of the joint are preserved to the best possible degree.

The Responsibility of Physicians in the Traumatic Neuroses

DR. H. H. DRYSDALE, Cleveland, Ohio: In studying these conditions etiologically I have arrived at the conclusion that the true genesis, in a large majority of cases, is psychic, and that it is fright, fear of death, anticipated pain and anguish received unexpectedly by a totally unprepared sensorium which is the chief element to be considered. Psychologically, fright is a fundamental emotion. Violent in action, it will under certain conditions of mind pervert the sense faculty, disturb the kinesthetic equipoise and deform the physical and psychical personality. I consider the manifestations of these conditions to be the involuntary expression of a break in the bodily feeling. These by degrees tend to organize and combine to form a morbid mental state, a delusive conception, as it were, toward which every thought converges. A faulty environment frequently does more harm than the actual injury, as it tends to make the individual

introspective and depressed, and as a consequence he throws aside the normal weapons of defense and surrenders himself to the misfortune which has assailed him. From an experience of 108 cases investigated from the standpoint of the corporation as well as that of the patient, and which included in many instances the prelitigation, also the post-litigation period, I have made several observations which I believe, if put into practice, would place the responsibility of adjusting these trying conditions on a scientific basis, and thus obliterate much of the confusion and disquietude which surrounds the traumatic functional disorders of the nervous system.

Hygroma of the Testicle

DR. CHARLES M. HAEPSTER, Toledo, Ohio: A hygroma is essentially a serous cyst. The bacillus of tuberculosis is often found, and the hygroma, if a true one, always contains hard caseous masses and rice bodies. A true hygroma of the testicle and cord is rare. In the case of a man, aged 45, the patient suffered from a hydrocele for a number of years, and this was frequently tapped by his family physician. Some months ago it was tapped and considerable blood and some pus were withdrawn. This alarmed the patient, and in consultation with the attending physician I found the testicle considerably enlarged and very painful, with some slight general disturbance. The cord and testicle were removed. Tubercle bacilli were found in the rice bodies and tissue of the sac. Syphilis undoubtedly had been contracted, but was denied by the patient.

The Tubercle Bacillus Cultivated from Cases of Primary Tuberculous Cervical Adenitis

DR. WILLIAM LITTERER, Nashville, Tenn.: Nine consecutive cases of primary tuberculous cervical adenitis were examined, which resulted in the isolation of five cultures of bacillus tuberculosis of the human type, and the four cultures of the bovine type. The classification of the types being made on the basis of four tests, to wit: First, the morphologic characters of the bacilli; second, the dysgenetic or eugenic characters of the cultures; third, the relative virulence toward rabbits, and, fourth, the reaction curve in 5 per cent. glycerin bouillon. This latter test serves admirably to distinguish between the two types, provided repeated application and careful control over a period, in some instances, of 18 months. I have found that the differences in the growth of the two types dysgenetic and eugenic on Doreet's egg medium to be very valuable in differentiating the bovine from the human type of bacillus. Rabbit virulence has probably been more uniformly satisfactory than any of the tests in determining the differences between the two types of bacilli.

(To be continued)

AMERICAN PUBLIC HEALTH ASSOCIATION

Thirty-Eighth Annual Meeting, Held at Milwaukee, Wisconsin,
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(Concluded from page 1046)

SYMPOSIUM ON MENTAL CONDITIONS

The Prevention of Mental Defects and Mental Diseases

DR. WILLIAM A. WHITE, Washington, D. C.: The practical things that may be done at once in any community are these: 1. Legislation should be secured placing the responsibility for the care of the insane previous to commitment in the local health office. 2. Every city of 100,000 inhabitants, or over, should have a psychopathic ward connected with its municipal hospital, which is as accessible for the mental case as the other wards are for general medical and surgical cases. This ward should have an out-patient department. 3. An after-care society should be organized to assist persons who have been discharged from a hospital for the insane to get on their feet and to point out to them ways of avoiding the conditions which led to their breakdown. 4. Adequate laws should be passed for the control of the labor of women and children. 5. There should be a campaign of popular edu-

cation. By the use of this term I am not merely dealing in a glittering generality that may mean nothing or everything. We have in this country nearly 200 state hospitals for the care of the insane. Each of these hospitals should be a center of information for the community in which it exists, and its medical officers should use their positions to spread information about mental disorders. The superintendent, or a member of the staff, should deliver one or more popular lectures each winter to which the public should be invited. Much might be accomplished in this way if all hospitals would do this. 6. Field work should be carried on from the state hospitals and psychopathic wards as centers to study conditions under which insanity has developed, to furnish assistance to the hospital in dealing with its patients, and to cooperate with the after-care society. 7. More liberal support should be given by city and state for scientific research work in this field, especially along the lines of etiology and prophylaxis."

Prevention of Feeble-mindedness

DR. E. R. JOHNSON, Vineland, N. J.: Two or three states have passed laws authorizing the unsexing of degenerates after they get into institutions, but please note that these individuals must get in the institutions first. I heartily approve of the operation of castration and merely agree to vasectomy and salpingectomy. After these operations have been performed a fair percentage of the patients may be returned with safety to their homes, and thus make room for others in the institutions, but the ideal way is to gather all the feeble-minded into institutions, and train them in so far as possible to be self-supporting—plenty of industrial occupation and very little academic training. From 30 to 50 per cent. can be made entirely self-supporting after 10 years' training. Take the women of child-bearing age first and teach them to raise and can small fruits, raise poultry and garden truck, knit underwear, weave rugs, carpets, etc. Then take the others as young as possible and the economic problem comes close to solution. But do not talk—get to work. The numbers are increasing. If they are not cared for in well-conducted training schools, where they may learn to contribute toward their own support, they must be kept in almshouses, reformatories, prisons and other institutions, and when they are led into evil ways the taxpayers pay for their arrest, their trial and the damage they have done. If feeble-mindedness is to be checked, physicians personally must do something.

Preventable Neuroses

DR. C. H. HUGHES, St. Louis: I wish to speak about the prevention of the neuroses which underly the physical, the moral and the mental integrity of the people, and which, if not considered and timely regarded, will eventuate in degeneration and degradation of our people, such as have visited the people who have gone before. The neuroses constitute the bane of our civilization. It was the neglect to care for a neurosis that caused the greatest of human generals to fall. It was a neglected epileptoid condition that caused Napoleon Bonaparte to lose the battle of Waterloo. As physicians we are for prevention of the neuroses, those conditions of mind and of the nerve centers that have so much to do with the individual in the community, with the individual on the firing line in the battle of life, and with the individual who has to meet the duties and obligations of our modern civilization, with its strenuous demands, in order to conserve the vitality of the race and save America. We must prevent neuroses because they are the bane of civilization; they are the bane of the family life; they are the bane of social life. The incongruities and unhappiness that exist in families and revealed so largely in the divorce courts are the product on one side or the other, and often on both, of the dominance of the neuropathic element in one or the other, or both members of the family. Lawyers speak of incompatibilities, but these individuals are instances of neurotic ill-adaptability. They are psychical misfits. By neuroses I mean not alone functional conditions of the nervous system, because the line of demarcation between functional and organic disease is only a question of time and of study

and further observation, but the functional affections of yesterday which are the organic troubles of to-day. The time is coming when we will understand hysteria to be an organic disease. Insanity comes down to us in its predisposing element in the majority of instances as an inherent predilection, an inherent organic tendency, and superadded to it comes the disturbance or influence of environment, the disturbing influences of depressive passion, the influences of conditions of over-strain, over-worry, which over-annoy the human mind. We should have a reasonable regard for the powers of the growing child, so that he may not be over-strained. He should have an adequate amount of fresh air, abundant nutrition, ample time for rest; and the prevention of those conditions which come from excesses is the cardinal principle which underlies the prevention and evolution and final destructive development of all neuroses.

Discussion on Mental Conditions

DR. JOHN N. HURTY, Indianapolis: What if we do save a child from diphtheria or scarlet fever, and yet fail to save it from some neurosis. The child is lost just the same. The longer I live and work in the science of hygiene, the more I am convinced that it is hopeless to work with the adult. We must go back and instruct the child; that being done we have taken the first step. Under our present form of education we do not do that except to a limited degree. The thought is gradually penetrating our minds that the child must have playgrounds and fresh air. We have been shutting out the air from the school room and calling it economy. We have been buying sites for school houses without playgrounds, and calling that economy, and it is the worst kind of extravagance. Something must be done to prevent the building of insane asylums, taxing the people, raising the rates, and having insane on every hand, and the way to do this is to begin with the child.

DR. HENRY A. NORDEN, Sturgeon Bay, Wis.: Aside from trying to make a living in the practice of medicine, I have been riding a hobby—the education of children. Neurotic conditions are superinduced by night studies on the part of children. Do not blame the teachers; do not blame the school board, but blame the people who are behind them and have them prevent the school board from doing what they should do. It is absolutely necessary, considering the way education is carried on to-day, for the child to study at night or to sacrifice the playtime of the day. It is almost impossible for children to study in school while one section of the school room is reciting. I have suggested frequently in my work that the number of hours of school sessions be cut down; that we use the school session for the recitations and explanations, and allow a part of the day to be used for pleasure and part for study. In that way we can prevent neurotic conditions that are produced by night studies.

DR. E. C. ROGERS, Faribault, Minn.: Wherever there is a family with two feeble-minded children, that family ought to be studied carefully, its ancestry gone into, and the mental condition of these children studied carefully, and from the work that is now being carried on we hope to have data which will give us the facts necessary to make statements as to what shall be done toward prevention of feeble-mindedness.

SYMPOSIUM ON VENEREAL DISEASES

Report of Committee on Education of the Public as to Communicability and Prevention of Gonorrhea and Syphilis

DR. GEORGE M. KOBER, Chairman, Washington, D. C., presented this report which contained several recommendations, which were referred to the executive committee for consideration, and which were reported back to the general meeting subsequently in the following amended form: The committee recommends:

1. The recognition, study and control of the prevalence of these, as with all other communicable preventable diseases, in order to ascertain their distribution.

2. An educational campaign for parents of all social classes, and children of all ages and sexes. This teaching should be not only moral, but also medical in the widest sense.

(a) Proper distribution of circulars, pamphlets and other literature by state health departments through all suitable channels.

(b) State health departments to instruct all of its local health officers in sexual matters, and direct them to make a special effort to educate the people in their respect.

(c) State health departments to make a special effort to awaken and interest the medical profession in this fight against venereal diseases.

(d) State health departments to send out specially trained paid teachers and lecturers of their own, supported by exhibits and lantern slides to address special meetings of parents, health officers, medical men, teachers and others in schools, colleges, churches, etc., on these and other preventable diseases.

(e) State health departments to encourage the organization of local leagues or associations whose purpose shall be the support of and control of a crusade against the spread of all communicable diseases. Said societies to include every profession and walk of life; to depend on philanthropists for necessary funds, rather than on paid subscriptions for fundamental support.

(f) Health departments to interest and provide for the authorities having charge of the educational curriculum in public and in private schools. (1) By introduction of biology into the graded courses of all schools; (2) To provide instruction in sexual matters for students of the upper grades; (3) by special instruction to normal school students who are to become the instructors. To improve preceptors, and teachers the necessity on students in reference to the common venereal diseases, and to inculcate a morale of protection among the college fraternities.

(g) To utilize the public press for the proper occasional presentation of the subject, and to discourage the display of advertising matter which encourages the exposure to dangers in these diseases.

(h) To utilize church clubs, fraternal societies, trade unions, women's clubs, and especially mother's clubs for instruction of parents.

(i) Health departments to recommend the enactment of laws for: (1) Physical inspection and segregation of prostitutes. (2) Notification and report (by number, if desired) of venereal cases. (3) Physical examination of men before marriage, male applicants for marriage license in order to obtain it being required to submit to an examination by a duly qualified physician for the purpose of ascertaining whether said applicants are free from venereal diseases. 4. To make it a crime to spread any venereal disease. 5. By keeping open free night dispensaries and maintenance of special dispensaries and hospitals for these diseases.

(j) Advocacy of temperance on account of the relationship between alcoholism and venereal diseases.

(k) Advocacy of personal cleanliness and venereal prophylaxis. Advocacy of early marriages.

These recommendations were adopted.

Venereal Diseases Among Seamen of the Merchant Marine

DR. J. W. KERR, Washington, D. C.: There were treated 1,281,427 cases of sickness from all causes, or an average of 53,392 patients annually. Of the total number, 106,090 were cases of syphilis in one of the three stages, 4,420+ being the annual average; 117,336 cases of gonorrhea (including gleet), representing an annual average of 4,889 cases; and 39,819 were cases of chancre (including ulcer of the genitals), or an average annually of 1,659+ cases. The total number of venereal cases treated and classified as above during the period mentioned was 263,245, or an average annually of 10,969 cases. It will thus be seen that these venereal cases represented 20.5 per cent. of the total number treated. This percentage it will be understood represents cases of syphilis, gonorrhea and chancre, and does not include complications or sequelae of those diseases.

Plea for Application of Methods of Preventive Medicine to Venereal Disease

DR. J. R. KEAN, Washington, D. C.: I do not think that it is either wise or necessary for scientific men interested in the good of the race and of the country to take any part in the discussion of the relation of this evil to society. The prostitute is a present confrontation of the problem. There is no reason to think that these diseases are beyond the reach of preventive medicine any more than other contagious diseases, and their immunity from restriction, must be attributed to the public disinclination to discuss them and legislate concerning them. I hope that this association will not be deterred, by the outcry of certain classes of persons who are accustomed to think with their emotions rather than their brains, from taking the bold stand in this matter which is justified by science, by common sense, and by the demands of the public good.

Venereal Prophylaxis in the U. S. Navy for the Benefit of Public Health Officials

DR. CHARLES N. FISKE, Washington, D. C.: About 50 per cent. of the enlisted men of the Navy have a venereal disease during an average of 4 years. During 1908, there were 4,651 original venereal infections which entailed a loss of service

and expense for treatment of 106,526 sick days; there were 1,001 cases of syphilis which represented nearly 7 per cent. of the total physical disability of the Navy for that year. While the morale has steadily and vastly improved during the past 10 years in other respects the damage resulting from this class of affection had assumed such proportions 4 years ago that numerous medical officers no longer felt justified in waiting indefinitely for moral regeneration; they felt that military efficiency demanded activities promising more immediate results; they instituted personal prophylaxis by the use of antiseptic irrigation and injections following exposure and on return to the ship or station. Certain results achieved caused the Navy Department nearly 2 years ago to authorize the extension of this work in connection with the customary educational propaganda, and distribution of confidential circulars throughout the service. Sailors and marines do not contract venereal disease from the navy, but from civil communities which are as notoriously indifferent to venereal disease as they were formerly to typhoid and other widespread infections. Military services have practiced compulsory notification of venereal disease for years and expect civil authorities to undertake similar measures for control. The source of the Navy's 15,000 first enlistment recruits, and the destination of a similar number of men discharged each year, is the civil population; its statistics would indicate that one youth out of every 6 in our urban population between the ages of 17 and 24 contracts a venereal infection each year. Venereal disease has by no means yet been conquered in the Navy, but there is evidence that its ravages are being materially lessened, and that instead of encouraging vice through the hope of immunity, the margin of failure of this prophylaxis is sufficiently wide to deter an increasing proportion of the personnel from sexual indulgence. The desire for clean men on clean ships has been stimulated, and no sense of security has been engendered.

Discussion on Venereal Diseases

DR. GARDNER T. SWARTS, Providence, R. I.: Last year, as president of this Association, I took the liberty of appointing a committee to take up the subject of venereal prophylaxis, with the idea that the people of our country were prepared to receive instruction in these matters. These communicable diseases are preventable, and if boards of health are to conserve the public health, then these diseases should be put on the reportable list and steps taken to prevent their prevalence as far as possible.

DR. J. S. NEFF, Philadelphia: I think that it is not possible to compel physicians to reveal the existence of these diseases among their patients, and they will not report such cases to health departments.

DR. JOHN N. HURTY, Indianapolis: I believe that the road leading to the prevention of venereal diseases is the longest and roughest which hygiene and sanitary science has to travel. At this time, every tribe, every nation, and people of the earth are thoroughly syphilized. Think of that, and now we are proposing to eradicate it. The first man to propose education to eradicate these diseases was Solomon, and he began 5,000 years ago, and with education, such as he gave, and such as we propose to give, these diseases have increased and multiplied. Until we put aside that prudery which now prevents us from attacking this problem correctly, and which prevents us from teaching the child about his sexual nature and procreation, we can make no progress. Let us begin with the child.

Remarks by Colonel Theodore Roosevelt

Col. Theodore Roosevelt, who was unable to address the Association at the Auditorium, as expected, went out to Whitefish Bay in an automobile, and addressed the Association there. He said in part: I regret very much that I was unable to meet you this morning. I could not do so, as the schedule mapped out for me was three times as much as I could do. Like any other man in public affairs, I am awake to the needs of the public health. It is necessary to join our efforts for the preservation of the public health.

It is important not only to keep the health of the individual, but also to keep the health of the nation. Yellow fever is a distinctive national problem. Several nationalities in the western hemisphere have dealt with it and must deal with it effectively to prevent the ravages of this scourge. The question of dealing with the public health is a matter of the last two generations. Half a century ago comparatively nothing was known of diseases which were a scourge to the human race. About 600 years ago the black death desolated Europe, a disease which undoubtedly we could deal with now. Then it took off two-thirds of the population of Europe. I have just come from a trip to the middle of Africa, where disease ravages mankind as it did our ancestors. I passed through regions where the sleeping sickness has to its credit over 200,000 deaths in one neighborhood.

The advances made in the medical profession during the last half century are incalculable. The work on the Isthmus of Panama could not have been done in its present shape a decade ago. The authorities could not have grappled with disease as they do now. The prime requisite in every nation is to have every man and woman an effective unit. You are dealing with the basic problem of citizenship. Men cannot be good unless they are healthy.

I welcome to this convention the delegates who come from foreign countries, especially from the Americas. In the two Americas we are solving the problem of living peacefully together. Our only rivalry, far different from Europe, is the endeavor to see which is best able to cope with the problems that confront us all. I welcome you as our rivals, who are doing all in your power to uplift and care for the physical well-being of the human race.

Disappearance of Yellow Fever from the Mexican Republic

DR. E. LICEAGA, of Mexico City, contributed a paper in which he stated that from the twentieth of December, 1909, not a single case of yellow fever had been observed either there or in any other part of the Mexican Republic. In spite of the success obtained, the sanitary service continues its action with the same regularity as in previous years, although it is now directing its energies especially against malaria.

Quarantine or Isolation in Diphtheria

DR. JAMES ROBERTS, Hamilton, Ont.: I wish to call attention to the dominance of the personal contact factor in the spread of this disease. Defective drains, bad ventilation, etc., although prejudicial to health, cannot cause diphtheria which is due to the presence of certain bacteria. Overcrowding assists the spread of diphtheria; 45 per cent. of my cases, representing not more than one-quarter of the school population, come from the districts where the industrial classes are centered. The presence of an ignorant foreign element hinders the work of sanitation and favors the spread of disease. Diphtheria, owing to the manner by which it is spread, is a school disease. The Boston board of health, after an exhaustive investigation, concluded that it would be impracticable to isolate bacillus carriers who did not themselves suffer from the disease, as these constitute 1 per cent. of all healthy school children, and these germs are ordinarily of little virulence. The restriction of this disease is for practical purposes limited to isolation of clinical cases and control of the contacts in connection with these. When isolation cannot be strictly carried out at home, hospitalization is the best method. But isolation hospitals are very unpopular, owing to their usually poor equipment, the danger of cross infection, etc. They safeguard the community, but often at the expense of the individual. Our present day conception of diphtheria as pre-eminently a school disease makes it imperative that the inspection of school children should be thorough enough for the detection of early cases, and of those children harboring virulent bacilli. When this has been accomplished, regulations intelligently enforced providing for the proper isolation of all cases, either at home or in suitable institutions, will be productive of better results and much less annoyance and hardship than the continued enforcement of antiquated laws and regulations incompatible with our present knowledge of diphtheria.

The Ventilation of Sleeping Cars

DR. T. R. CROWDER, Chicago: The only available method of accurately estimating the air supply of running cars is by determining the amount of carbonic acid gas which their atmosphere contains, and from this computing the amount of air which enters. The problem is mathematically simple, and rests on the known amount of carbonic acid thrown off by respiration. This method has been applied in the study of sleeping-car ventilation. About 2,000 samples of air have been analyzed from these cars. It shows that an average of approximately 40,000 cubic feet of air is supplied hourly to the main sleeping compartment of standard cars, which are equipped with the ventilating system now in common use by the Pullman Company, and that the amount is rarely, if ever, under 20,000 cubic feet. There are rarely more than 20 people in a sleeping car; hence each person is supplied with about 2,000 cubic feet of air each hour. This applies to the findings in occupied berths, both lower and upper, as well as to the car in which the berths are not made up. The high wind pressure to which running railway cars are subjected results in fair ventilation even when they have no special ventilating devices. The amount of air which they receive will vary from 15,000 to 50,000 cubic feet an hour, depending on various conditions.

When cars are uncomfortable and feel "stuffy" the fault is not generally to be laid to an inefficient air supply, as is commonly supposed. It rarely happens that the air supply is so inadequate to bring about this condition, though it may at times contribute to it. The fault generally lies chiefly in an improper control and regulation of the heat supply. The degree of humidity of the atmosphere is also an important factor; but its control is difficult, and often impossible. In my opinion, heat control is a more important problem in maintaining comfort in sleeping cars than is the furnishing of a greater air supply; and relatively greater attention should be concentrated on this element of the problem of maintaining a hygienic atmosphere in cars.

Owen Bill Endorsed

The Association endorsed the principles embodied in the Owen Bill for the establishment of a national department of health.

New Sections

Two new sections, the Section on Sociology, and the Section on Sanitary Engineering were formed.

Resolutions Adopted

INSTRUCTION IN HYGIENE AND SANITATION

A resolution was adopted recommending that a committee be appointed to consider and report next year a scheme (of which Dr. Probst shall be chairman) for instruction in hygiene and sanitation in high schools, and in colleges and universities, with the view to bringing the necessity for such instruction with definite recommendations to the attention of educational authorities. Other resolutions were adopted as follows:

TERMINAL DISINFECTION

WHEREAS, A considerable number of municipal health officers believe terminal disinfection at the conclusion of communicable disease is of questionable value and extravagant in practice; and

WHEREAS, A few municipal health officers of sound judgment and highest attainment have abandoned this practice as a prophylactic measure; therefore, be it

Resolved: That the Municipal Health Officers Section refer to the executive committee a recommendation that the American Public Health Association appoint a committee to study the end results and practice in communities where terminal disinfection is no longer practiced at the conclusion of cases of communicable disease.

COOPERATION WITH CENSUS BUREAU

Resolved: That this Association appoint a committee to cooperate with the Bureau of the Census in establishing standard methods of accounting for municipal sanitation.

INSTRUCTION OF CHILDREN IN SEXUAL MATTERS

Resolved: That this Association offers and accords its hearty approval and commendation of the educational work carried on by the *Ladies' Home Journal* regarding the necessity and ways of teaching children the truth about reproduction and the sexual life.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

An Overcrowded Profession in Nevada

A Nevada correspondent writes regarding the proportion between physicians and population as given in the Educational Number of THE JOURNAL:

"In this state about thirty-five new physicians locate each year, with little or no increase in the population and no likelihood of there being much increase. These new men usually 'go broke' in a short time. Those of us who are here, and who are not crowded out by the new men who are able to stay, have all that we possess invested in property and consequently are unable to leave. Of course, there are exceptions, as some have made investments which have been good ones, but the fact remains that few physicians here are out of debt and physicians are not looked on at the stores as good credit. Many eastern physicians read the boom accounts of some mining camp and think that there are splendid openings in Nevada, but long before they get here, the place may have dozens of roving physicians who have located there. Ethics do not count for much in these new towns. If a doctor gets a contract with a mine for a year, he seldom gets it renewed, as the competition for the place is so keen that some other physician underbids him. The fact that physicians will look for desirable locations where the population is the lowest and the health is the best speaks volumes for the lack of business sense displayed by the average physician. The fact remains that new physicians arrive here at the rate of about thirty-five a year in a state with a population of only about 40,000. What would you think if thirty-five new doctors located each year in a town like South Bend, Indiana? Yet the total population of the state of Nevada is not much greater than that of South Bend, while health conditions are naturally much better."

Our correspondent calls attention to a serious situation. A state with as small a population as Nevada (42,325, according to the 1909 estimate) and with this population widely scattered, can support only a limited number of physicians. Each new arrival means increased competition and more difficult conditions for all. The proportion of physicians to population in the United States is one to 655—if we count only those legally entitled to practice and in active practice—while in Nevada the relative number of physicians is nearly three times as great, there being one to every 239 inhabitants. These conditions make it almost impossible for newcomers to hope for success or even for a living. The facts should be kept in mind and local conditions carefully considered by young physicians before deciding on a location, for Nevada is by no means the only place that is overcrowded, so far as physicians are concerned.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course. Several weeks' programs are given in this issue so that hereafter the programs may appear from week to week well in advance of the time for their use.]

First Month—Third Weekly Meeting

CONGENITAL SYPHILIS

1. **DYSTROPHIES SYPHILITIC IN ORIGIN:** Syphilitic stigmata. Small child, slight resistance to diseases, subject to rickets. Asymmetry of skull, microcephaly, flat nose, palate. Spinal deformities, dactylism, flat-foot, luxation of hip. Aural and ocular defects. Retarded mental development. Idiocy. Malformation of teeth.
2. **EARLY CONGENITAL SYPHILIS:** Time of onset of symptoms. Coryza, facies, saddle-nose, rhagades, anemia. Cutaneous lesions, macular eruptions, psoriasisform syphilide, mucous patches, pemphigus neonatorum. Nails. Hemorrhage.

Bony changes, skull, pseudoparalysis of Parrot, osteochondritis syphilitica. Involvement of liver, spleen, testicle.

3. LATE CONGENITAL SYPHILIS: Age at onset. Earlier manifestations. Development, infantilism. Teeth. Keratitis, chronic otitis. Nose and palate. Skin lesions, gummata and ulcers. Bone lesions, lymph nodes.

Fourth Weekly Meeting

DIAGNOSIS OF SYPHILIS

EARLY: Microscopic diagnosis, *Spirochæta pallida*, primary and secondary lesions.

LATE: Previous history, scars, discolorations of skin, alopecia, bone nodes, frequent miscarriages.

SERUM DIAGNOSIS: Wassermann reaction, theory, technic. Noguchi modification. Value of reaction, occurrence in different stages of syphilis, in other diseases, prognostic value.

THERAPEUTIC TEST: Value of antisyphilitic treatment in obscure conditions.

TREATMENT

PROPHYLAXIS: 1. Control of prostitution. 2. Control of the syphilitic, by reporting the disease, by providing hospital, by vaccination. 3. Legal measures, regarding marriage, occupations, "private-disease" quacks. 4. Education of the medical profession, of the public. 5. Personal prophylaxis. 6. Prophylaxis of hereditary syphilis.

ABORTIVE TREATMENT: 1. Excision or cauterization of the chancre; practical value of each. 2. Constitutional abortive treatment.

CONSTITUTIONAL TREATMENT: Methods of treatment; expectant, interrupted, continuous. 1. Mercury. Physiologic effects. Administration by ingestion, inunction, injection, fumigation, baths and plasters; advantages and disadvantages of each.

2. Potassium iodid. Physiologic action of iodine. Therapeutic effects. Methods of administration, preparations, dosage, untoward effects. 3. Mixed treatment. Indications, advantages. 4. Serum treatment.

TREATMENT OF LOCAL MANIFESTATIONS: 1. Chancre. 2. Skin and mucous lesions. 3. The eye.

GENERAL TREATMENT: Diet, hygiene, etc.

Monthly Meeting

Etiology and Early Diagnosis of Syphilis.

The Methods of Treatment of Syphilis.

Syphilis as a Factor in the Social Life of the Community.

REFERENCE BOOKS FOR THE FIRST MONTH

Works on "Syphilis," by Keyes, Hutchinson, Fournier, and Power and Murphy.

Morrow: Genitourinary Diseases, Syphilology and Dermatology. Haugs and Hardaway: Genitourinary Diseases, Syphilis and Diseases of the Skin.

Taylor: Genitourinary and Venereal Diseases.

Second Month—First Weekly Meeting

General Subject for the Month: Diseases of the Blood-Vessels

ANATOMY

ARTERIES: Gross anatomy, size, shape, course, anastomoses, terminal arteries. Microscopic anatomy, the three coats, vasa vasorum. Lymphatics and nerves. Arterioles.

CAPILLARIES: Structure, size.

VEINS: Histologic structure; anastomoses; sinuses.

PHYSIOLOGY

VELOCITY of blood flow in arteries, veins and capillaries, methods of determination, variations in flow and causes.

BLOOD-PRESSURE: Methods of determination, the sphygmomanometer. Arterial pressure, systolic, diastolic and mean. Capillary pressure. Venous pressure. Production of normal pressure: (1) heart beat, (2) resistance to blood-flow, (3) elasticity of arteries, (4) quantity of blood. Effect on blood-pressure of variations in each of above-named factors. Effect of muscular efforts; of respiratory movements.

THE PULSE: Pulse wave, velocity, form of wave, sphygmograph, anacrotic and catacrotic limbs. Pulse wave in health and in disease. Venous pulse.

VASOMOTOR NERVES

VASOCONSTRICTORS: Origin, center in medulla, course, general distribution, tonicity. Vasoconstrictor reflexes, pressors and depressors.

VASODILATORS: Origin, general course and distribution, properties. Vasodilator reflexes.

REFERENCE BOOKS FOR THE SECOND MONTH

Habeck: Diseases of the Heart and Arterial System.

Miles: Human Blood-vessels.

Russell: Arterial Hypertension, Sclerosis and Blood-pressure.

Janeway: Clinical Study of Blood-pressure.

Text-books on Practice of Medicine and on General Surgery.

Second Weekly Meeting

DISEASES OF THE ARTERIES

ARTERIOSCLEROSIS

ETIOLOGY: Age, sex, occupation, hypertension, syphilis. Chronic intoxications, mode of living, renal disease. Role of poisons in production of arteriosclerosis. Relation between arterial and kidney lesions.

PATHOLOGY: 1. Nodular form. Gross and microscopic changes. 2. Senile form. 3. Diffuse arteriosclerosis. Frequency with which different arteries are involved. Involvement of visceral arteries. Sclerosis of veins.

SYMPTOMS: Increased blood-pressure, thickening of arteries, hypertrophy of heart, change in heart sound. Cardiac symptoms, due to involvement of coronary arteries. Cerebral symptoms, transient paralysis, aphasia, vertigo, hemorrhage, cerebral degenerations. Renal symptoms. Arteriosclerosis of the splanchnic region. Sclerosis of arteries of lower limbs, intermittent claudication.

TREATMENT: Prophylactic, diet, exercise, habits. Curative, physiologic and therapeutic actions of iodine, mode of administration.

SYMPTOMATIC: Vaso-dilators, purgative, venesection, etc.

State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, October 3-4. Sec., Dr. Ancil Martin.

COLORADO: The Capitol, Denver, October 4. Sec., Dr. S. D. Van Meter, 1723 Tremont Place.

GEORGIA: Regular, The Capitol, Atlanta, October 11. Sec., Dr. I. H. Goss, Athens; Homeopathic, Atlanta, October 3. Sec., Dr. R. E. Hinman, 153 Whitehall Street.

IDAHO: Boise, October 4. Sec., Dr. O. J. Allen, Bellevue.

ILLINOIS: Coliseum Annex, Chicago, October 19-21. Sec., Dr. James A. Egan, Springfield.

KANSAS: Topeka, October 13. Sec., Dr. H. A. Dykes, Lebanon.

LOUISIANA: New Orleans, October 18-19. Sec., Dr. A. B. Brown, 108 Baronne Street.

MICHIGAN: Lansing, October 11-13. Sec., Dr. B. D. Harrison, 504 Washington Arcade, Detroit.

MINNESOTA: State University, Minneapolis, October 4-6. Sec., Dr. W. S. Fullerton, St. Paul.

MISSISSIPPI: Jackson, October 11-12. Sec., Dr. S. H. McLean.

MONTANA: The Capitol, Helena, October 4. Sec., Dr. William C. Riddell.

NEW JERSEY: State House, Trenton, October 18. Sec., Dr. H. G. Norton.

NEW YORK: Albany, September 27-30. Chief of Examinations Division, Dr. Charles F. Wheelock.

NORTH DAKOTA: Grand Forks, October 4-6. Sec., Dr. H. M. Wheeler.

OKLAHOMA: Muskogee, October 11. Sec., Dr. Frank P. Davis, Enid.

RHODE ISLAND: State House, Providence, October 6. Sec., Dr. Gardner T. Swarts.

WYOMING: State Capitol, Cheyenne, October 12-14. Sec., Dr. S. B. Miller, Laramie.

West Virginia July Report

Dr. H. A. Barbee, secretary of the West Virginia State Board of Health, reports the written examination held at Charleston, July 11-13, 1910. The number of subjects examined in was 9; total number of questions asked, 120; percentage required to pass, 80. The total number of can-

didates examined was 67 of whom 48 passed and 19 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Louisville.....	(1910) 80, 83, 83, 84, 85, 86, 90		
Johns Hopkins University.....	(1910)		86
University of Maryland.....	(1910)		82
College of Physicians and Surgeons, Baltimore.....	(1910) 80, 82, 82, 82, 83, 83, 83, 83, 84, 84, 84, 85, 85, 86, 87, 90.		
Baltimore Medical College.....	(1908) 85; (1910)		85
Maryland Medical College.....	(1910) 80, 81, 86		
Barnes Medical College.....	(1910)		85
Cornell University Medical College.....	(1910)		86
North Carolina Medical College.....	(1910)		81
Eclectic Medical College, Cincinnati.....	(1910)		84
Jefferson Medical College.....	(1910) 84, 86, 87, 89, 89		
University College of Medicine, Richmond.....	(1910)		82
Medical College of Virginia.....	(1910) 81, 82, 83, 85, 85		
University of Virginia.....	(1910)		87

FAILED

College of Physicians and Surgeons, Chicago.....	(1910)	78
University of Louisville.....	(1908) 67; (1910) 74, 75, 75, 78, 78, 78, 79.	
College of Physicians and Surgeons, Baltimore.....	(1910) 76, 77, 77	
Eclectic Medical College, Cincinnati.....	(1910) 71, 74, 75	
Meharry Medical College.....	(1908) 77; (1910)	74
Chattanooga Medical College.....	(1903) 77; (1910)	77

The following questions were asked:

OBSTETRICS AND GYNECOLOGY

1. What forms of hemorrhage are met with before, during or after labor, treatment of each? 2. Define puerperal eclampsia and give its treatment. 3. Name the source, character, relative quantity, and functions of the liquor amnii. 4. What are the most serious complications met with in How would you treat a case of hour-glass would you treat a case of face presentation? treat a case of gonorrheal conjunctivitis in an infant? 8. Give five causes of metrorrhagia. 9. Give in full your treatment of gonorrheal endometritis. 10. Give symptoms and treatment of cystitis.

PRACTICE OF MEDICINE AND PEDIATRICS

1. Give the diagnosis and treatment of acute follicular tonsillitis. 2. What is the practical import of hematuria, and how can its source be diagnosed? 3. Give the etiology and treatment of St. Vitus' dance. 4. Give the symptoms indicative of impacted gallstone. 5. Give some suggestions for diet after weaning and the feeding of children between the ages of one and two years. 6. State some rules regarding bathing, exercising and clothing infants. 7. Describe and treat infantile syphilis. 8. Differentiate pneumonia from capillary bronchitis, give treatment of each. 9. Thrush: State conditions that favor its development. Give treatment. 10. What diseases in infancy usually precede congestion of the brain? Give necessary precautions to prevent.

CHEMISTRY AND MEDICAL JURISPRUDENCE

1. Explain the following terms: atom, molecule, oxidation, reduction, analysis, synthesis. 2. Write the formulas for calomel, bichlorid of mercury, nitrate of silver, copperas, saltpeter. 3. What are the source, properties and uses of quinin, strychnin and cocaine? 4. Name any five organic acids and give their source and uses. 5. Distinguish between wood alcohol and grain alcohol as to their properties and uses. 6. Explain the chemistry of respiration. 7. What are the sources and properties of phenol (carbolic acid)? How would you treat a case of phenol poisoning? 8. Define insanity and give some of its various forms. 9. What is senile dementia? 10. What is the hydrostatic test and what is its value in a case of suspected infanticide?

ANATOMY AND EMBRYOLOGY

1. Into what classes are the bones divided and give a few instances of each. 2. Describe the antrum of highmore. 3. Trace a drop of blood from the tip of the tongue to the index finger. 4. Name the lobes and fissures of the brain. 5. Describe the solar plexus nerves. 6. Describe the stomach. 7. Name the abdominal viscera. 8. Describe the aorta and name its branches. 9. What changes take place in the vascular system at birth? 10. Describe the embryo at end of six weeks of gestation.

SURGERY

1. Describe the treatment of a bullet wound of the leg. 2. Define thrombosis; embolism. Describe the symptoms of venous thrombosis of the leg. 3. Treat a compound comminuted fracture of the middle third of femur. 4. How would you distinguish between a fracture at the neck of the femur without impaction and a dislocation? 5. Burns: Define, classify; give prognosis and treatment. 6. Give the nature and treatment of Potts' fracture. 7. Name the dangers and give the treatment of carbuncle. 8. What is hemorrhage? Divide anatomically and clinically, treat mechanically and therapeutically. 9. How would you determine that a limb was injured beyond hope in a crushing accident. 10. Give the cause and treatment of varicose ulcers.

BACTERIOLOGY AND HYGIENE

1. What are pyogenic bacteria? 2. Define germicide, antiseptic, asepsis, sterile, disinfectant. 3. Define immunity. What is natural immunity, acquired immunity, inherited immunity? 4. How is diphtheria antitoxin obtained? What is the usual dose? 5. What disease is transmitted by a bite of the infected *Stegomyia fasciata*? 6. How do forests benefit public health? 7. Give six desirable factors in the location of a tuberculosis sanitarium. 8. What four diseases may be acquired from drinking cow's milk? 9. What objections are advanced against vaccination? 10. Name five good disinfectants and give indications for their use.

MATERIA MEDICA AND THERAPEUTICS

1. What are antiseptic remedies? Name three and give indications for their use. 2. What are excitomotors? Name three and explain therapeutic action of each. 3. Give two cerebral sedatives and give therapeutic action. 4. Aconite: Physiologic action. Therapy and dose of tincture. 5. Apomorphin: From what derived, physiologic action, therapy and dose. 6. Nitroglycerin: Give properties, physiologic action, therapy and dose. 7. Digitalis: Dose and indications for use. 8. Name three emetics with dose of each. 9. Ferrum: Name four preparations and dose of each. 10. Atropin: Source, physiologic action and dose.

PHYSIOLOGY AND HISTOLOGY

1. Food: Divided into how many classes, give example and chemical composition of each. 2. Respiration: Describe it, give number in adult and in child one year old. 3. Animal heat: Describe it, give temperature in mouth, axilla and rectum and daily variation. 4. Describe the course and changes nitrogenous, foods undergo in the body. 5. What is the effect of alcohol long continued on the human body? 6. Red corpuscles: Describe them, where formed and destroyed and give function. 7. Describe the general, pulmonary and portal circulation. 8. How is the heart nourished and how is arterial tension maintained? 9. Give histology of skin. 10. Give histology of lobule of human lung.

SPECIAL MEDICINE

1. Define Pott's disease. Make early diagnosis. 2. Define blood pressure. How determined? Give diagnostic value. 3. Give pathology, diagnosis and treatment of progressive muscular atrophy. 4. Name the cardinal symptoms of tumor of the brain. 5. Give etiology, diagnosis and treatment of optic neuritis and optic atrophy. 6. For what conditions and in what strength would you use the following in the eye: boric acid, sulphate zinc, nitrate silver, atropin sulphate, cocaine, bichlorid of mercury and yellow oxid of mercury. 7. Describe, diagnose and treat nasal polyp. 8. Give the etiology, pathology and treatment of the symptom ozena. 9. Diagnose and treat hysterical aphonia. 10. Give etiology, symptoms, diagnosis and treatment of spasm of the larynx in children.

Missouri June Report

Dr. Frank B. Hiller, secretary of the Missouri State Board of Health, reports the written examinations held at St. Louis, and Kansas City, June 13-15, 1910. The number of subjects examined in was 12; total number of questions asked 90, percentage required to pass, 75.

At the examination held at St. Louis, the total number of candidates examined was 125 of whom 114 passed and 11 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale Medical School.....	(1909)		87.3
Northwestern University Medical School.....	(1897)		78.6
College of Physicians and Surgeons, Chicago.....	(1910)		82.2
Harvard Medical School.....	(1907)		87.4
American Medical College St. Louis.....	(1910) 75, 76, 81.2		
St. Louis College of Physicians and Surgeons.....	(1909)		81.2
Barnes Medical College (1909) 75; (1910) 75, 75.2, 75.2, 77.2, 79.4, 82.5, 83.4, 83.8, 84.2, 85.7, 87.3, 87.3, 87.8.			
St. Louis University (1909) 84.6, 86.4; (1910) 75.2, 78.3, 78.3, 78.4, 80.1, 80.6, 81.6, 81.9, 82.1, 82.2, 82.4, 82.6, 82.7, 83, 83.2, 83.2, 83.2, 83.6, 83.6, 84, 84.1, 84.3, 84.6, 85, 85.2, 85.5, 85.7, 86.1, 86.2, 86.3, 86.4, 86.6, 86.6, 88.2, 88.4, 88.6, 88.9, 89.6.			
Washington University, St. Louis (1908) 75.1; (1910) 77.2, 78.2, 78.6, 78.8, 78.9, 79.1, 79.2, 79.4, 79.7, 80.5, 80.6, 80.8, 81.1, 81.2, 81.3, 81.5, 81.7, 82.3, 82.6, 82.7, 82.8, 83.2, 83.3, 83.5, 83.4, 83.5, 83.6, 83.6, 83.9, 84, 84.4, 84.1, 84.2, 84.5, 84.8, 85.1, 85.2, 85.6, 86.2, 86.8, 86.9, 87.2, 87.5, 87.9, 88.8, 92.5.			
Woman's Medical College of Pennsylvania.....	(1908)		83.6
Meharry Medical College.....	(1907) 76; (1909)		75.9
University of Nashville.....	(1904)		75

FAILED

St. Louis College of Physicians and Surgeons (1906) 56.7; (1909) 66.5.	
Homeopathic Medical College of Missouri.....	(1909) 70.6
Barnes Medical College.....	(1907) 53.2; (1910) 62.5, 65.6, 67.7, 68.8
Ensworth Medical College.....	(1910) 64.1
American Medical College, St. Louis.....	(1909) 63.1
Vanderbilt University.....	(1910) 30

At the examination held at Kansas City, the total number of candidates examined was 31 of whom 29 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Kansas.....	(1910)		82.2
Kansas Medical College.....	(1894)		75
Hospital College of Medicine, Louisville.....	(1904)		79.4
University Medical College, Kansas City (1910) 75, 75.3, 78.2, 79.1, 79.2, 79.6, 80.4, 80.6, 80.8, 81.2, 82.8, 84.6, 85.2, 85.3, 87.2.			
Ensworth Medical College.....	(1910) 79.6, 82.0, 83.8, 84.1, 87.7		
Kansas City Hahnemann Medical College.....	(1910) 80.8, 82.0, 84		
St. Louis College of Physicians and Surgeons.....	(1907)		76.1
St. Louis University.....	(1910)		86.3
Columbia Univ., Coll. of P. & S.....	(1907)		87.1

FAILED

Ensworth Medical College.....	(1910)	69.7
University Medical College, Kansas City.....	(1905)	65.9

Book Notices

RADIOTHERAPY. By Dr. Louis Wickham, Physician in Saint-Lazare, and Dr. Degrais, Chief of the Laboratory in the Hôpital Saint-Louis. Translated by S. Ernest Dore, M.D., Cantab. With an Introduction by Sir Malcolm Morris, K.C.V.O. Cloth. Price, \$5 net. Pp. 306, with 92 illustrations. New York: Funk and Wagnalls Co., 1910.

This is a personal book, and being at the same time scientific it is all the more interesting and valuable for that fact. It is a temperate effort to state the results of the work which Wickham with the collaboration of Degrais has done in this field. There is first a full consideration of the physics of radium as it bears on its therapeutic use, of its effects on tissues and the reasons therefore, and of the technic of the therapeutic use of the agent. All of this is valuable, but the account of technic is particularly so, as this is in great part the result of Wickham's pioneer work. A large part of the work is devoted to therapeutic results and this is conservative and convincing. The results obtained are for the most part those we have learned to expect from x-rays in epithelioma, leukoplakia, keloid and other scars, and tuberculosis of the skin. The results shown in these conditions are excellent, but they are not superior to those which have been obtained from x-rays in equally competent hands. Indeed, they are striking in their similarity, and support the view that the actinic energy of radium rays and x-rays differ very slightly from each other in their effects on living tissues. A very full description is given of the results in cutaneous angiomas; the subject deserves this, for it is with these lesions that the authors have had their most striking results. The results of the treatment of angiomas with radium are beautiful, surpassing any that have been obtained by any other method of treatment except the still more recent one of refrigeration with liquid air or solid carbon dioxide. Equally good results are shown in pigmented nevi.

The book constitutes a report of original research in therapeutics of the highest interest and of practical value. And the book is worthy of the research; it is scientific in spirit, accurate, without loose or overstatement, and conservative. Even without practical interest in the subject, one should find the book entertaining as showing the marvelous results that are being obtained by scientific workers in these new therapeutic fields.

DUODENAL ULCER. By B. G. A. Mörnhan, M.S., Senior Assistant Surgeon at Leeds General Infirmary, Eng. Cloth. Price, \$4 net. Pp. 367, with 63 illustrations. Philadelphia: W. B. Saunders Co., 1910.

This volume is written in that clear, concise style, which carries the conviction to the reader that the author is master of the subject. There are four short chapters dealing respectively with ulceration of the duodenum in cases of burns or scalds; uremic ulcer; tuberculous ulcer, and ulcer in melenaeonatorum. Then follows a chapter on the important subject, "Symptoms and Diagnosis of Chronic Duodenal Ulcer." The clinical history is so clearly stated that it would seem that the diagnosis should be made almost as easily as the diagnosis of an ordinary case of appendicitis. Some internists perhaps will be somewhat shocked to read: "A description of these symptoms (chronic duodenal ulcer) is to be met with in most of the text-books of medicine under the caption 'hyperchlorhydria' or 'acid gastritis' and the belief that these words are a sufficient diagnosis is very general. After giving a diagnosis of duodenal ulcer I am not infrequently met with the objection that the patient's symptoms are indicative of nothing more than 'persistent hyperchlorhydria.' This is the medical term for the surgical condition duodenal ulcer. Recurrent severe 'hyperchlorhydria' is duodenal ulcer." These are rather strong statements but they are backed up by the unusually large experience of a careful observer who has demonstrated the condition present by operation, therefore must have great weight.

The treatment of duodenal ulcer by gastro-enterostomy and the various accessory operations is well discussed, and the technic of the operations clearly illustrated. The use of the terms "vertical" and "horizontal" to define the direction of the incision or line of suture in the intestine or stomach is confusing and unfortunate, as these words have a very definite meaning when used to indicate direction, which is in no sense

synonymous with "transverse" and "longitudinal." The clinical picture of perforating ulcer is so clearly drawn that it would seem as though failure to recognize these cases in the future should be the exception. In an appendix is found a detailed report of all of the cases operated on by the author up to date.

This is an excellent work and should be carefully studied by every physician who is treating this class of cases, as there are altogether too many patients going the rounds being treated for so-called dyspepsia and indigestion who ought to be relieved permanently by suitable operation.

PRACTICAL RADIUM. By Heber Roberts, M.D., 5899 Cates Ave., St. Louis. Cloth. 1910.

This is one of those books that begin with the author's portrait. And as that would indicate, it is a personal book. The tone of it reminds one of Mr. Dooley's title for Roosevelt's book on the San Juan campaign, "Alone in Cuba." It is filled, not with accepted knowledge of radium and the therapeutic uses of radium, but with the author's peculiar views of this subject. These are curious, often naïve, and by no means lacking in confidence. "Practical Radium. The Causation of Cancer and Its Curability with Radium" (this from the front page). "I have simplified the exposition of cancer . . . so that no error may creep in to divert my meaning. It is therefore within the province of every physician . . . to be able to have at least a well-defined reason for the cause and continuance of cancer, and the methods employed for its relief." "Radium has done more to relieve and eradicate cancer than all other remedies." "Where medicine is employed for the treatment of skin diseases [no qualifications anywhere as to the kind], radium is more effective . . . and requires less time to effect a cure." "In all the varieties of cancer, internal and external, the treatment calls for radium . . ." These sentences selected in five minutes give some idea of the author's restraint. Thirty pages are given to what is called "the exposition of cancer and radium technic." This is in the form of a dialogue and constitutes as gross a piece of balderdash as it is easy to find. It is not instructive; it is not amusing; it is just stupid bombast. In our opinion the book is an offense to the already overtaxed subject of radium therapeutics.

LA GREFFE OVARIENNE: HISTORIQUE; RÉSULTATS CLINIQUES ET THÉRAPEUTIQUES. Par le Docteur Ivan Scheurer. Paper. Price, 4.50 francs. Pp. 152, with 9 illustrations. Paris: G. Steinheil, 2, rue Casimir-Delavigne, 1910.

This monograph of about 180 pages contains a historical review of the experimental work done on animals on the grafting of ovaries, together with the work done by others on the grafting or transplanting of ovaries in the human subject. This part of the subject occupies about 133 pages and is quite complete. Following is a detailed report of the results of the work of Professor Tuffier on the grafting of ovaries in the human subject at the Beaujon Hospital. At the present time Tuffier has had more experience in the grafting of ovaries in women than perhaps any other surgeon and his results demonstrate beyond doubt that the ovary may be successfully grafted. Not only has menstruation become reestablished in women with grafted ovaries but pregnancy has taken place. The ovary has been successfully grafted on the peritoneum near its normal site, on the psoas muscle retroperitoneally, in the cornua of the uterus, in the Fallopian tube, in the subcutaneous tissue of the abdominal wall and in the subperitoneal connective tissue. Success, therefore, does not depend on the location. Tuffier has successfully grafted ovaries that have been kept in cold storage for several days.

The monograph is an interesting one and contains many useful hints regarding the grafting of organs and their subsequent behavior.

DIE RÖNTGENTHERAPIE IN DER DERMATOLOGIE. Dr. Frank Schultz, Privatdozent, Oberarzt der . . . Behandlung und der Kgl. Universitätspoliklini . . . zu Berlin. Paper. Price, 6 marks. Pp. 143, Julius Springer, 1910.

This monograph gives an excellent statement of the present position of Roentgentherapy in dermatology. The author devotes the first 40 pages to a consideration of technic and apparatus. This is a valuable part of the book, because a

satisfactory and not overburdened description of the present day technic and apparatus of *x-ray* therapy is difficult to find. The remaining 100 pages are given to therapeutics, 40 pages to general therapy and the remaining 60 to special therapy. Under special therapy the various dermatoses treated with *x-rays* are considered. The author considers the uses of *x-rays* in various dermatoses from the standpoint of one with large clinical experience, and his views are scientific and temperate. It is interesting to see him confirm again the findings of earlier conservative authors of the value of *x-rays* in dermatology. He gives a convincing summary of the usefulness of *x-rays* in various dermatoses, fortifying his statements with many beautiful reproductions of photographs. These are striking proof of the value of this agent when employed by one who is as well an expert in dermatology as in the use of *x-rays*. It is a valuable addition to the literature of a subject which at present is being undervalued. It well deserves translation and publication in English.

HANDBUCH DER GESAMTEN MEDIZINISCHEN ANWENDUNGEN DER ELEKTRICITÄT einschliesslich der Röntgenlehre. Herausgegeben von Prof. Dr. med. H. Boruttau, Privatdozent für Physiologie an der Universität Berlin, und Prof. Dr. med. L. Mann, Privatdozent für Nervenheilkunde an der Universität Breslau. Band I. Paper. Pp. 599, with illustrations. Leipzig: Dr. Werner Klinkhardt, 1909.

In the first volume of this work, which is to consist of three volumes, is found a very elaborate presentation of the physics and physiochemics of electricity. The various devices, both chemical and mechanical, for the generation of electricity are described in detail as well as all accessory devices such as galvanometers, interrupters, rheostats, commutators, etc. The difference in the physical and chemical properties of the various electric currents such as the direct, alternating, and induced, etc., are explained, following which is an interesting chapter on electro-physiology. A chapter on electropathology or the injurious effects of electricity as seen in lightning stroke or contact with strong industrial currents closes this volume.

The use of electricity is increasing so rapidly and the harmful effects of the strong currents found in the industries are manifested in such a variety of ways that it is necessary for every physician to be familiar with these harmful effects even though he does not make use of electricity as a therapeutic agent. The subject is so important that it would be well if this work were translated so that those who are unable to read it in the original might become familiar with its contents.

Medicolegal

Responsibility for Gauze Left in Kidney Cavity—Obligations of Surgeon—Evidence of Local Custom Excluded— Surgeons Not Liable for Negligence of Hospital Nurses and Interns

The United States Circuit Court of Appeals, Seventh Circuit, says that *Harris vs. Fall* (177 Fed. R. 79), was an action for alleged malpractice brought by the latter party, a resident of Ohio, who authorized his local physician to correspond with the defendant, a Chicago surgeon, with reference to performing an operation, which it was arranged should be performed in a Chicago hospital. The operation was for stone in the right ureter, but none was found, and a subsequent operation was performed wherein the right kidney was removed. The suit arose out of the latter operation and ensuing treatment of the wound, as at some stage of treatment a band of gauze used therein was deposited and left in the kidney cavity, causing serious disturbance until removed long afterwards through another operation.

In reference to the treatment, the defendant testified that he used fabrics to clean out the wound, but left nothing in the wound when finished; that he then packed with drainage, by inserting successively strips of gauze, by means of an instrument, with the strips reaching the bottom of the cavity, the next two inches further up, and so graduating their loca-

tions; that he thus put in five or six strips—making no count or record of the exact number—each strip for such use being seven or eight inches wide and a yard long; that the outer end of each strip was held in a clamp during the process and each remained outside the wound, for removal at the next dressing; that he then sewed up the wound, leaving an opening for packing two to two and one-half inches in length, and then put on the outside dressing.

The patient remained at the hospital some seven weeks after the second operation, under the charge of the defendant, who made frequent examinations of wound and dressings, and on occasions attended to the dressing. Generally, however, one or another of two interns of the hospital attended to the packing and dressing under instructions given them by the defendant.

There was no question but that the defendant was of excellent repute for skill in surgery, and that the removal of the kidney was skillfully performed. But in undertaking this professional work, the obligation was incurred by him to exercise throughout the performance of his engagement both "the ordinary care and skill of his profession, in the light of modern advancement and learning on the subject," and his own best ability, skill, and care. That the facts stated, therefore, established a case of malpractice and serious injury, well within the rule, if the defendant was responsible for the leaving of the gauze in the kidney cavity, was unquestionable.

There was no error in the exclusion of testimony offered by the defendant to show "that at the time and place of the treatment by defendant of plaintiff it was the custom of reasonably careful" surgeons in treating similar cases to leave the "subsequent care of patients in the matter of dressing, packing, and unpacking of such wounds to the house doctor." In each form of tender the proof of custom was thus limited either to Chicago or to the hospital in question—not a general custom. The rule is elementary that such local custom cannot enter into the contract made with a stranger to locality and custom without evidence tending to show notice, and, no offer appearing to prove that either the plaintiff or his Ohio physician, who represented him in the arrangement, was familiar with the alleged local custom, the exclusion of the offered evidence was proper.

The trial resulted in a judgment in favor of the plaintiff for \$4,000 damages, but that is reversed, and a new trial ordered, on account of error in an instruction given the jury that: "The defendant has claimed that even though plaintiff did carry the gauze from Chicago in his body when he left here in March that the defendant is not to be held responsible for that, unless it appears that the defendant was responsible for allowing the plaintiff to go away from here with the gauze in his body as distinguished from the house surgeon, who the testimony shows participated in the treatment and care of the plaintiff during his entire stay at the hospital. But on that question I charge you as a matter of law that the defendant in this case cannot defend himself by saying that what was negligently done to this plaintiff, if negligence there was, is attributable to some one or more of the house surgeons at the hospital. It was his case, and he must discharge his obligation to the plaintiff under the facts in this case as if he had no house physician associated with, or participating with, him in the care and treatment of this plaintiff."

Support for this instruction rested on this proposition: That the engagement of the defendant, under the circumstances in evidence, conclusively implied his obligation, not only to perform and complete the operation—which, as defined in *Akridge vs. Noble*, 114 Ga. 949, "begins when the opening is made into the body and ends when this opening has been closed in a proper way after all appliances necessary to the successful operation have been removed from the body"—but to attend, either personally to all care, dressings and treatment required, or employ professional assistants therefor, until recovery or discharge from such care. The court believes that no such undertaking on the part of the defendant can reasonably be presumed under the evidence, and that it is without sanction under any authority called to attention. The proposition ignored these potent facts: The patient

entered the hospital, contracted there for his room and accommodations, and received care and treatment from its nurses and house physicians throughout his stay, for which he made weekly payments, and the hospital was incorporated for general hospital purposes, under management of a board of trustees, was neither owned nor controlled by the defendant, nor were the house physicians selected or engaged by him, or within his control, except as their services were tendered as a part of the hospital service.

The court believes, moreover, that proof of a local custom in respect of such hospital service was not needful; that the general custom of incorporated general hospitals in like localities, to furnish like service, and of reliance thereon by an independent operating surgeon and by patients therein for the usual care and after-treatment incidental to an operation, are matters within common knowledge and entitled to notice accordingly. In *Baker vs. Wentworth*, 155 Mass. 338, this custom in respect of nurses is recognized, and the operating surgeon held exempt from liability for negligence of the nurses, although the patient supposed (in the absence of representations) that the hospital was owned by the surgeon; and in *Perionowski vs. Freeman*, 4 Foster & F. 977, Chief Justice Cockburn remarked on the practice (there proven) of surgeons leaving care of their patients in various details to the hospital nurses that such practice was "indispensable," and the operating surgeon was not liable for their negligence.

So, these hospital attendants, known as "interns" (usually young physicians), are furnished at the general hospitals to attend to the ordinary work of dressing and treating the wound (left by an operation) on the way to recovery; and the mere undertaking of the surgeon to operate, under call or engagement therefore, cannot, as the court believes, imply his further personal undertaking for the ordinary details of after-treatment, to make the doctrine of respondeat superior (let the superior answer; the principal or master must answer, or is responsible, for the acts of his agent or servant) applicable, to charge him for fault or negligence on the part of such hospital attendants, neither known nor discoverable by the surgeon in the exercise of care and skill throughout his engagement.

No doubt is entertainable, however, that the professional undertaking in this case extended as well to the subsequent visits, observations, and personal treatment in evidence with the attendant obligation for the exercise of skill and care therein.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

September 10

- 1 Contribution of Ignatz Philipp Semmelweis to Modern Medicine. R. C. Newton, Montclair, N. J.
- 2 Etiology of Prostatic Hypertrophy. E. G. Ballinger, Atlanta, Ga.
- 3 The Anti-Tuberculosis Propaganda. J. B. Huber, New York.
- 4 Acute Inflammations of the Middle Ear and Their Treatment. M. D. Lederman, New York.
- 5 Hospital Noise. H. A. Royce, Kingston, Ont., Canada.
- 6 *The Catching Cold Phobia. W. Brady, Elmira, N. Y.
- 7 Treatment of Pellagra. G. M. Niles, Atlanta, Ga.

6. Catching Cold Phobia.—Laying aside unfounded traditions and depending solely on our present knowledge, Brady says that it may be confidently affirmed that the vulgarly listed causes of respiratory disease, such as cold, dampness, exposure, wet feet, and draughts, are, for all practical purposes, entirely negligible factors, and the only precaution necessary against them is the effort to secure bodily comfort, which is purely instinctive, though very commonly misguided. Cold has no demonstrable etiologic relation with respiratory disease. Clean draughts are not only harmless, but salutary, being requisite for perfect ventilation. The phrase "catching cold" is meaningless, misleading, undignified and obsolete. The groundless fear of cold, fostered by the abuse of this misleading phrase, constitutes, he declares, a form of hysteria that opposes and embarrasses earnest therapeutic measures.

So far as we now know, the true predisposing factors of the various respiratory diseases (acute and chronic) are dietetic sins, unhygienic clothing, overheated apartments and defective ventilation. Prophylaxis, therefore, consists in directing intelligently man's instinctive effort to secure bodily comfort, together with reasonable isolation of every case of respiratory disease.

Boston Medical and Surgical Journal

September 8

- 8 Indications for Abdominal Hysterectomy. W. P. Graves, Boston.
- 9 *Acute Pancreatitis. F. G. Balch and G. G. Smith, Boston.
- 10 *Surgery of the Vascular System. J. C. Hubbard, Boston.
- 11 *Disease of the Maxillary Antrum. J. P. Clark, Boston.
- 12 *Certain Aspects of the Bacteriology of Bacillary Dysentery. A. I. Kendall, Boston.

9. Acute Pancreatitis.—From the literature and the cases which the authors have looked up they conclude that almost all the acute diseases of the pancreas begin as an acute hemorrhagic inflammation, accompanied usually by free fluid in the peritoneal cavity and by disseminated fat necrosis. Operation is the treatment indicated, unless the patient is in such severe collapse that the additional shock would surely be fatal. The object of operation is to drain the pancreatic secretion and the products of infection; this is best done by incising the tissue of the gland, as advised by Porter, and by carrying the drainage through the gastrohepatic omentum close above the lesser curvature of the stomach. They report in detail 16 cases of acute hemorrhagic pancreatitis and 2 cases of suppurative pancreatitis.

10. Surgery of the Vascular System.—Hubbard believes that it may be fairly said that direct transfusion of blood is now a recognized method of treatment in hemorrhage and shock, and in hemorrhagic disease of the new-born; that it is perhaps of benefit in some cases of eclampsia and illuminating gas poisoning, and perhaps in hemophilia, and as a means of improving the condition of a feeble patient to such a point that an operation may be undertaken.

11. Disease of the Maxillary Antrum.—These were cases of what Clark says might very appropriately be called "mucous" disease of the antrum. They were characterized by the presence of a thick, viscid, tenacious mucus in the antrum with an apparently unusually large ostium maxillare. The vasomotor symptoms were prominent.

12. The Bacteriology of Bacillary Dysentery.—Kendall presents briefly certain facts concerning the bacteriology and biochemistry of the dysentery bacillus and associated intestinal flora in bacillary dysentery, with the fundamental principles relating to their activity in the alimentary canal, and mentions the procedures which are theoretically logical for the restoration of a normal intestinal flora. The bacterial flora of the intestinal tract in cases of bacillary dysentery, he says, is putrefactive, chemically speaking, because, as a rule, there is little or no sugar present in the intestinal tract of the body for them to act on. This is equally true for those organisms which succeed in penetrating into the body itself, since the small amounts of dextrose normally present in the blood are usually metabolized early in the disease, particularly under a starvation diet. The remedy for this condition, from the standpoint of bacteriology, is to add an excess of sugar which can be utilized by the bacteria within the intestinal tract and to restore to normal the amount of dextrose in the blood, so that even those organisms which have succeeded in penetrating within the body itself may have an opportunity to act upon sugar rather than on the nitrogen of the tissues of the body.

Dextrose infusions (25 per cent. chemically pure dextrose in normal saline solution) tend to restore this normal dextrose, and also to furnish the body with a considerable amount of fluid. Feeding lactose by mouth (5 per cent. solution) brings about a similar change in the chemistry of the intestinal bacteria.

New York Medical Journal

September 10

- 13 Social Plagues and the Public Schools. I. S. Wile, New York.
- 14 A Universal X-Ray Frame. A. Granger, New Orleans.
- 15 *Pustular Typhoid Roseola. C. Eggleston, New York.
- 16 *Treatment of Pulmonary Tuberculosis by Immobilization of Portions of the Trunk. B. G. R. Williams, Paris, Ill.
- 17 Osteomyelitis of the Temporal Bone. E. Amberg, Detroit.

- 18 Functional Exercises in Some Nervous Diseases. W. Burdick, Philadelphia.
19 Fatal Case of Toxic Pyelitis in Infancy. S. Neuhoof, New York.
20 Treatment of Pulmonary Tuberculosis. T. Y. Hull, San Antonio, Texas.

15. **Pustular Typhoid Roseola.**—On the abdomen and lower anterior portion of the chest of Eggleston's patient there were from 12 to 15, or more, "spots." The majority was small, about 2 or 3 mm. across, rose-red, maculopapular, fading on pressure, and typical typhoid rose spots. Several were somewhat larger and were capped with small vesicles, containing a clear fluid. Two or 3 were very large; each from 10 to 12 mm. in diameter and deep rose-red at the base, which was infiltrated and somewhat elevated, forming a distinct areola about a central yellow pustule. These pustules were tender on direct pressure. They bore no relation to the hair follicles. The vesicles and pustules closely resembled those of variola and varicella. They were, however, somewhat larger and at no time umbilicated. The ninth day of the disease 3 new typical rose spots were observed. A number more appeared on each of the 2 succeeding days. The rose spots, in several instances, became capped with vesicles shortly after their appearance. Some remained vesicular, but a few rapidly went on to form pustules similar to those already described. No new spots appeared after the twelfth day of the disease. The entire eruption was closely confined to the front of the body from the lower chest to the groins. There was no lymphadenitis associated with the pustulation. Those which remained typical rose spots faded in the customary 2 and 3 days after their appearance. The vesicles dried up and were gone in 4 or 5 more days. The pustules disappeared slowly, requiring from 10 to 14 days for resorption. Two of the large ones were opened and the pus expressed. The pus was a very thick, stringy, yellow material, unlike ordinary staphylococcus pus in gross appearance. Smears showed a few leukocytes and pus cells, many threads of mucus, and a few unidentified bacteria. Cultures made from the pus developed a pure growth of the *Staphylococcus aureus*. The patient was noticeably clean and free from any form of skin disease such as acne or parasites. No bathing or hydrotherapy was used in the treatment. The only drug employed was liquor ammonii acetatis. The course of the disease in general was very mild. Only 4 similar cases were found recorded in the literature by Eggleston.

16. **Partial Immobilization of Trunk.**—Williams proposes to immobilize certain parts of the chest for certain periods during the day in the treatment of pulmonary tuberculosis. Although he has used continuous immobilization in some cases for periods of several days, he prefers to run no risks of weakening the sound lung by over-endeavor. He has found it of advantage in many cases, therefore, to apply temporary immobilization, i. e., during certain hours only, these depending on many conditions—stage of the disease, weather conditions, etc. Although he hesitates to lay down rules, he believes that the forenoon is usually the best time for the immobilization. In attempting temporary immobilization of portions of the chest with adhesive plaster there arise at once serious questions of expense in using so many plasters, and the time and trouble spent in their application and removal. To obviate these difficulties he has devised the lacing method. Here the plasters are left in position, being tightened by lacing during certain hours. It is scarcely necessary to state that lacing should be done after a forced expiration, and that enough room should be left between the edges to provide for tight lacing. When any degree of permanency is desired, he prefers strong ticking or canvas. Williams has at present a number of patients under observation, some of whom have been under observation for many months, and though several have been dismissed from active treatment none has been pronounced cured. On some he has applied temporary or permanent half corsets and on others the abdominal binder. He uses hygienic and medical treatment in each case.

Lancet-Clinic, Cincinnati

September 10

- 21 Bronchopneumonia. P. A. Kautz, Cincinnati.
22 Pistol-Shot Wound of the Brain. A. H. Barkley, Lexington, Ky.

Virginia Medical Semi-Monthly, Richmond

August 26

- 23 Pollomyelitis—Misconceptions About Treatment. T. A. Williams, Washington, D. C.
24 What Can be Done for Relief of Urinary Discomforts of Elderly Men? R. C. Bryan, Richmond.
25 Vasectomy for the Defective Negro with His Consent. B. Barrow, Barrow's Store.
26 Congenital Hypertrophic Stenosis of the Pylorus. E. P. Copeland, Washington, D. C.

Medical Fortnightly, St. Louis

August 25

- 27 Physical and Psychical Effects of Hydrotherapy. G. F. Butler, Chicago.
28 Personal Experience in Treatment of Venereal Disease. J. D. Sheba, Bland, Mo.

Journal of the Michigan State Medical Society, Battle Creek

September

- 29 *Experiments in Intestinal Anastomosis. C. Georg, Ann Arbor.
30 Practical Considerations of Crossed Eye and Other Muscular Eye Troubles. F. J. Bernstein, Kalamazoo.
31 Cancer of the Penis and Extirpation of the Organ with Perineal Transplantation of the Urethra. S. R. C. Graves, Grand Rapids.
32 Holoacardius Acephalus. A. E. Budde, Norway.
33 Diagnosis of Abdominal Tumors. H. E. Randall, Flint.

29. **Intestinal Anastomosis.**—The results of experiments by Georg which have extended over a period of two years, have convinced him that the method of Parker and Kerr is the most practical for end-to-end anastomosis and that of Copek for lateral anastomosis and gastro-enterostomy.

Journal Tennessee State Medical Association, Nashville

August

- 34 *Pellagra. J. A. Sewell, Rockwood.
35 *Amebiasis. J. L. Jekls, Memphis.
36 *Trifacial Neuralgia. W. T. Swink, Milan.
37 The Subinvolved Uterus. W. G. Bogart, Chattanooga.

34. Abstracted in *THE JOURNAL*, April 23, 1910, p. 1400.

35, 36.—Abstracted in *THE JOURNAL*, April 30, 1910, p. 1465, 1466.

Journal South Carolina Medical Association, Charleston

July

- 38 Serotherapy of Epidemic Cerebrospinal Meningitis. C. H. Dunn, Boston.
39 Early Symptoms and Early Diagnosis of Uterine Carcinoma. C. F. Ross, Anderson.
40 *Uncinariasis in the Negro. W. J. Burdell, Lugoff.
41 Increase of Blindness. C. W. Kollock, Charleston, S. C.
42 Gastric and Duodenal Ulcers in Contradistinction to Their Sequelae. A. B. Knowlton, Columbia.

40. Abstracted in *THE JOURNAL*, May 28, 1910, p. 1876.

Interstate Medical Journal, St. Louis

September

- 43 Theory, Methods and Psychotherapeutic Value of Psycho-Analysis. William A. White, Washington, D. C.
44 Indications for and a New Technic Pertaining to the Operations of Cecostomy and Appendicostomy in Treatment of Intestinal Lesions. S. G. Gant, New York.
45 Factors that Shape the Successful Treatment of Nervous Diseases. J. Collins, New York.
46 Paget's Disease of the Nipple. E. Jonas, St. Louis.
47 *Operation for Cystocele: An Improved Method. D. T. Gilliam, Columbus, Ohio.

47. **Cystocele.**—Gilliam has slightly modified his original operation as follows: (1) an oval denudation of the most prominent part of the cystocele as in the old time operation; (2) dissecting flaps from the vaginal wall on either side of the denuded area with which to cover the latter; (3) bringing the flaps together over the denuded area and suturing them to it and to each other. The result is that the cystocele is effaced, and the site of the cystocele is strengthened by an additional layer of fascia—that taken from the sides of the vaginal wall.

Alabama Medical Journal, Birmingham

August

- 48 The Toxemia of Pregnancy. C. B. Jackson, Jasper.
49 Relation of the Medical Profession to the Practice of Op-tometry. J. F. Orr, Edinburgh.

Annals of Surgery, New York

September

- 50 *Symptomatology and Surgical Treatment of Spinal Cord Tumors. J. R. Hunt and G. Woolsey, New York.
51 *Intestinal Lesions Produced by Blunt Force. H. B. Stone, Charlottesville, Va.

- 59 Chronic or Recurring Diarrheas, Their Diagnosis and Treatment. J. T. Halsey, New Orleans.
60 *The "*Methode Origene*"—Oxygen as an Antiseptic. A Delcourt, Houma, La.

- 61 Injuries to Nerves of the Upper Extremity. E. M. Hummel, New Orleans.
62 Treatment of Compound Fracture of Femur and Leg. L. Sexton, New Orleans.
63 Primary Carcinoma of the Body of the Uterus. M. A. Shlenker, New Orleans.

60. Oxygen as an Antiseptic.—The conclusion is drawn by Delcourt that a mixture of oxygen and peroxid of hydrogen is an antiseptic and an antibactericide of first order, superior to those actually used, having no odor and no toxicity. It is specially powerful and specific against infection produced by anaerobic bacteria, and represents our best, and very likely our only, efficacious weapon against gaseous gangrene. It is moreover, a most precious and harmless agent against common suppuration and ordinary infections, irrespective of the offending bacteria. Most of all, those common infections of the skin, be they streptococcus or staphylococcus, vanish as if by magic, before a few peroxid of hydrogen applications.

Journal Indiana State Medical Association, Fort Wayne

August

- 64 The Inter-Relationship of Gall-Stone Disease and Appendicitis. F. W. Foxworthy, Indianapolis.
65 Cyclic Vomiting in Children. C. G. Beall, Fort Wayne.
66 Angioneurotic Edema. H. O. Bruggeman, Fort Wayne.
67 Sketches of the Medical History of Indiana (continued). G. W. H. Kemper, Muncie.
68 Importance of Stomach Lavage for Removal of Blood Swallowed During Operations. J. R. Eastman, Indianapolis.

Albany Medical Annals

September

- 69 *Early Diagnosis of Pulmonary Tuberculosis. A. H. Garvin, Raybrook, N. Y.
70 *Alcoholic Psychoses. R. E. Doran, Willard, N. Y.
71 The Albany Guild for the Care of the Sick. S. L. Dawes, Albany.

69. Diagnosis of Pulmonary Tuberculosis.—Three points are emphasized by Garvin in the early diagnosis of the disease. The first is the insidious onset. The second point is the most important physical procedure in the diagnosis, which is auscultated cough. A lung examination which does not necessitate the patient's coughing is not a complete examination, for a case with definite signs will be passed over and marked as negative if this is forgotten. The suspected area can be re-examined again and again during the physical examination in an attempt to develop the suspected signs. Third, the most important working rule for the general practitioner in the fight against this disease is family examination. In 4,500 new cases of pulmonary tuberculosis that applied for treatment at the public clinics in Berlin, under the direction of Dr. Kaiserling, the families of these 4,500 new cases were systematically examined for a discovery of concealed and unknown cases, and as the result of this systematic family examination in these 4,500 cases, 4,500 additional cases of unknown tuberculosis were discovered, many of the patients being in an early and favorable stage for treatment, while many had gone on insidiously and were concealed and unknown bacilli bearers, even to themselves.

70. Alcoholic Psychoses.—Doran endeavors to show that while alcohol is a factor in the production of insanity, it is only one of many, and that even in the forms of insanity commonly considered as due to alcohol, every factor must be given due weight. The exact bearing of alcoholism on the development of insanity is not yet known. He believes, however, that alcohol is more potent in filling poorhouses and penal institutions than asylums, and physicians should do all in their power to educate the people on the possibility of danger in this direction. Certainly they should discourage drinking among those who are hereditarily predisposed, or among the weak-minded and epileptic, because they know that in such cases alcohol is truly a poison and frequently converts such people into dangerous and unsocial lunatics.

Woman's Medical Journal, Cincinnati

August

- 72 Preventive Medicine. L. L. Meanes, Des Moines, Iowa.
73 Hemorrhage. J. Mendenhall, Des Moines, Iowa.
74 Toxemia and Eclampsia. F. Sherbon, Colfax, Iowa.
75 The Physician's Opportunity. A. V. Holmes, Omaha, Neb.
76 Instrumental Interference in Obstetrics. E. Peo, Boone, Iowa.

Journal of Experimental Medicine, New York

September

- 77 Effect of Various Agents on the Blood Flow Through the Coronary Arteries and Veins. G. S. Bond, Baltimore.
78 Resemblance Between Anaphylactic Intoxication and Poisoning with Witte's Pepton. A. D. Hirschfelder, Baltimore.
79 *Immunity in Cancers of the White Rat. I. Levin, New York.
80 *Relation of Fatty Degeneration to Oxidation of Purins by Liver Cells. H. G. Wells, Chicago.
81 Experimental Yaws in Monkey and Rabbit. H. J. Nichols, New York.
82 Changes in the Hemosiderin Content of the Rabbit's Liver During Autolysis. W. H. Brown, Madison, Wis.
83 Effect of Vagus Section on Anaphylaxis in Guinea-Pigs. J. Auer, New York.
84 *Cultivation of the Leprosy Bacillus and Experimental Production of Leprosy in the Japanese Dancing Mouse. C. W. Duval, New Orleans.
85 Intracellular Proteolytic Enzymes of Liver. A. R. Dochez, New York.
86 Cell Changes in Amaurotic Family Idiocy. B. Sachs and I. Strauss, New York.
87 A Transmissible Avian Neoplasm (Sarcoma of the Common Fowl). P. Rous, New York.

79. Immunity in Cancers of White Rat.—Forty rats were treated by Levin for 6 weeks, by hypodermic injections of 1 c.c. of 4 per cent. solution of arsazetin, first every 2 days and then every 4 days. Three weeks after the beginning of the treatment the tumor was inoculated. The arsazetin had no influence on the growth of the tumor, though the quantity of the drug was sufficient to impair considerably the general health of the animals. In nearly every animal a condition was created similar to the state of a waltzing mouse. Another series of animals was treated with autolyzed tissue. The organ for immunization was the liver of "Nul-lers," that is, rats naturally resistant to tumor implantation. The tissue was kept under aseptic precautions at body temperature for two weeks, then the autolyzed tissue was mixed with about double the quantity of normal salt solution, ground thoroughly with sand, filtered, and 1 c.c. of the solution injected subcutaneously. The results compare favorably with those of the investigators who induced immunity with normal tissue. Thus it seems possible to produce in rats a certain amount of resistance to growth of tumor by treatment with tissue of which the cells are killed, but the endocellular ferments apparently remain active. It is interesting to note here that autolyzed liver tissue seems to immunize equally well, whether used before or after the inoculation of the tumor, which fact may be of importance in view of the possibility that the resisting influence of the host may be of two kinds, one to the tumor implantation, the other to tumor growth. Another method consisted in ligating all the vessels of the spleen and from 4 to 12 days after the operation the tumor was inoculated. In another experiment the operation was done 9 days after the inoculation. The results show that the immunizing influence of such a ligated spleen is not so strong as the influence of autolyzed liver injected subcutaneously, and also that this immunizing influence is exerted only on the grafting of the tumor and not on its continued growth. The action of the ligated spleen is probably comparatively weak on account of the rapid absorption of the organ, which prevents the autolysis, and, indeed, no traces of such a spleen were found in the abdominal cavity two days after the operation. A third series of experiments was undertaken which consisted in the subcutaneous inoculation into a rat, of the normal skin and spleen tissue of a mouse, followed in a few days by a subcutaneous inoculation of the tumor. The aim of this treatment was to accustom the tumor cells to mouse tissue and then to observe whether such a rat tumor, which had the opportunity to obtain during its growth the food supplied by the inoculated normal mouse tissue, would not grow more readily when subsequently inoculated into a mouse. The results of this investigation were negative, but the extremely interesting fact was observed that a certain number of the rats treated with mouse tissue appeared immune against growth of the rat sarcoma.

80. Oxidation of Purins by Liver Cells.—Wells' experiments show that it is possible, by proper use of hydrazin and phosphorus, to cause a high degree of fatty change in the liver with a minimum of necrosis, involving alike both peripheral and central portions of the lobule and thus eliminating the

"factor of safety" or residual normal cells. Nevertheless, it is found that such fatty liver tissue has not lost in the least its power to oxidize uric acid when acting on it *in vitro* with abundant air supply, nor is the power to oxidize xanthin to uric acid noticeably diminished. While these experiments merely prove that extreme fatty degeneration does not destroy or appreciably diminish the power of liver cells to oxidize uric acid and xanthin *in vitro*, yet they suggest that in general, fatty degeneration is probably not essentially incompatible with a high degree of metabolic activity by the affected cells. It is possible that in the living tissue functional activity may be decreased secondarily by fatty metamorphosis, as for example, by the enlarged fatty cells compressing the capillaries and reducing circulatory activity, or by modification or diffusion through the cell by the fat deposits, independently of any deleterious influence on the cellular enzymes themselves.

84. Cultivation of Leprosy Bacillus.—The medium on which Duval grew the leprosy bacillus was prepared as follows: The rind was carefully removed from the fruit portion of fully matured green bananas, every precaution to avoid contamination being used, and large blocks of the fruit, after slanting one surface with a sharp knife, were introduced into suitable sterile glass cylinders provided at the bottom with cotton plugs saturated in sterile distilled water. These plugs served not only as support for the banana, but as a source of constant supply of moisture. Sterile 1 per cent. solutions of tryptophan, cystein (made from protein) and leucin were next prepared and a portion of each poured on and allowed to saturate the banana. These solutions were used separately and in varying combinations, in order to determine on which the *B. lepræ* would grow best or grow at all. Both the banana and agar, which was saturated in a 1 per cent. solution of cystein, proved an excellent medium for the artificial cultivation of the leprosy bacilli when incubated at from 32 to 35 degrees C. The maximum growth occurred at a temperature of 32 degrees C. Light seems to favor the growth of *B. lepræ*; cultures kept in a glass incubator regulated at 32 degrees C. grew more rapidly than those in the dark chamber under similar conditions. Multiplication began early in the transplants and visible growth developed in the form of small, glistening, white colonies in from 4 to 6 weeks. Growth also occurred on the banana and agar when a solution of cystein and tryptophan had been added. The fact that growth occurred on the protein-cystein medium, and not on the others except in the presence of it, shows very conclusively that *B. lepræ* utilizes the end-products of digestion and not the products of cell metabolism. At least it is reasonable to assume that this is the case, if deductions may be drawn from these experiments. Multiplication *in vitro* of an acid-fast organism was obtained from the transplanted leprosy tissue on the above mentioned media from four cases of leprosy which corresponded in every essential to the leprosy bacillus. Not only did the leprosy bacilli develop in the original cultures but they continued to grow in subcultures. That the artificial growth is *B. lepræ* there can be no doubt, as the morphologic and cultural features and the animal tests have clearly proved.

St. Louis Medical Review

August

- 88 Amenorrhea. G. Gellhorn. St. Louis.
- 89 The Reflexes in Hysteria. T. A. Williams, Washington, D. C.
- 90 Vegetations and Condylomata. C. C. Vanderbeck, St. Louis.
- 91 Animal Therapy. J. Knott, Dublin, Ireland.
- 92 Complement Fixation. W. T. Burdick, St. Louis.
- 93 Spartein. H. H. Redfield, Chicago.
- 94 Laboratory Diagnosis. G. L. Servoss, Fairview, Nev.

Journal of Cutaneous Diseases, New York

August

- 95 *Extramammary Paget's Disease: Case Occurring on Forearm, Associated with a Nevo-Carcinoma. M. B. Hartzell, Philadelphia.
- 96 Rhinoscleroma Cured by X-Ray Treatment. S. Pollitzer, New York.
- 97 Lupus Annularis. R. L. Sutton, Kansas City.
- 98 Larva Migrans. M. Haase, Memphis.
- 99 A Pipette Pump for Wassermann-Nelisser-Bruck Serodiagnosis of Syphilis and General Laboratory Work. C. W. McClure, New York.

95. Extramammary Paget's Disease.—A man, aged 64, was referred to Hartzell on account of a cutaneous affection of the arm, presenting at the time of his first visit the following unusual clinical features: On the outer side of the left forearm, beginning a little above the elbow joint and extending downward, was a palm-sized, circumscribed, irregularly oval patch with a bright red surface, for the most part smooth, but in places slightly scaly, over which were scattered a few pea-sized erosions covered with yellowish crusts, and about the border and within the upper portion a number of flat, shot-sized nodules covered with brownish crusts. In the center of the upper margin of this patch was a rather superficial ulcer about an inch in diameter, with a slightly infiltrated border, covered with exuberant granulations over which were scattered a number of irregularly shaped islands of bluish-white epidermis. The subjective symptoms were trifling, consisting chiefly of moderate itching. The disease had lasted about 15 years, and had until recently, at least, been regarded by the patient and his physician as an eczema and had been treated as such, but with little success. Sections made from the margin of the ulcer presented the histologic features characteristic of a nevo-carcinoma. Sections made from the large patch surrounding the ulcer exhibited some interesting changes, most of them more or less characteristic of Paget's disease. Sections made from the nodule excised showed a sharply circumscribed acanthosis in which the cells were decidedly smaller than normal and had for the most part lost their prickles. The most striking feature of these sections, however, was the narrow, deeply stained band of fibrous tissue and flat cells with elongated and deeply stained nuclei which separated the epithelial mass from the corium beneath, and dipping into it at intervals produced a partial lobulation of it. So far as Hartzell is aware, this is the first reported case in which a nevo-carcinoma has been associated with anything resembling, even remotely, Paget's disease. Moreover, there was apparently a reversal of the usual sequence of events, since the history makes it probable that the carcinomatous degeneration of the nevus preceded the appearance of the Paget's disease.

Journal of Advanced Therapeutics, New York

August

- 100 Resuscitation by Electric Currents of Subjects in a Condition of Apparent Death Caused by Chloroform, Ether, Electrocutation, Drowning and Other Forms of Asphyxia. L. G. Rohbovitch, Paris.
- 101 Electrostatic Effects in Arteriosclerosis. F. H. Morse, Boston.

Southern Medical Journal, Nashville

August

- 102 Pure Milk as a Factor in Public Health. R. L. Jones, Nashville.
- 103 Diagnosis and Treatment of Intestinal Perforation with Report of Two Successful Cases. W. W. Battery, Augusta, Ga.
- 104 *Cancer of the Breast. W. A. Bryan, Nashville.
- 105 The Anesthetist: A Specialist. C. O. Abernethy, Raleigh, N. C.
- 106 Some Difficulties in Gastric Diagnosis. W. H. Witt, Nashville.
- 107 *Inguinal Herniotomy with Special Reference to Cocain Anesthesia. F. DeWitt, Nashville.
- 108 *Diuretic Action of Spartein. W. de B. MacNider, Chapel Hill, N. C.
- 109 Tuberculous Meningitis. J. Overton, Nashville.
- 110 Psychoneuroses and the Doctor's Relations to the Public. False Assumption and Innuendos of Christian Scientists. T. A. Williams, Washington, D. C.
- 111 Uncinariasis in Tennessee. N. Evans, Nashville.

104. Cancer of the Breast.—The following classification of cases of breast cancer is made by Bryan:

1. Those cases which are seen early, accurately diagnosed by a competent pathologist as cancer. This class offers the best chance of permanent cure by radical surgery—from 50 to 81 per cent.
2. Those cases in which axillary involvement is observed, but without supraclavicular node enlargement. This class gives possibly 25 per cent. cures. Certainly some patients are cured, and the radical operation should be done. Of course, the smaller and fewer the lymph nodes enlarged in the axilla at the time of the operation, the better the chance of cure. The author does not think we are justified by the history of cancer of the breast in condemning all cases with axillary involvement to a hopeless prognosis.
3. Those patients who have ulcerated cancer, and who have infiltration of the pectoral muscles, will perhaps give a very small percentage of cures. This reduces the prognosis much more than enlargement of the axillary nodes does.
4. Those cases in which there is supraclavicular enlargement of the lymph nodes offer very little or no hope of permanent cure, but the limits of life are considerably extended by extirpation.
5. Patients with thoracic and abdominal infiltration (including the spread along lymph channels) and remote (blood) metastases are not curable by surgery, and are to be operated on only for pallia-

tive purposes, such as will add to the comfort of the patient and her attendants or reduce the probability of complications such as infection in the ulcerative cases, or avoid the loss of vitality by hemorrhage or the constant leakage of serum.

107. Inguinal Herniotomy with Special Reference to Cocain Anesthesia.—Dewitt's plea for cocain anesthesia is based on the following points:

1. Many patients are induced to submit to a cure who would not do so with general narcosis, and the anesthesia mortality is removed.
2. The integrity of the nerves is maintained, thus preventing muscle atrophy.
3. There is no vomiting, thus relieving strains on sutures and allowing early administration of food.
4. The danger of ether pneumonia is removed, and there is much less liability to renal insufficiency.
5. Every step in the operation is done with cocain that is carried out with general narcosis.

108. The Diuretic Action of Spartein.—MacNider found that an active preparation of spartein used in a sufficiently large dose produces a rise of general arterial pressure. Following the rise in blood pressure there is an increase in the output of urine, which is likely due to an increase of local blood pressure in the kidney. Following surgical procedures, where the amount of urine is greatly reduced, or where anuria has developed as a result of low general arterial pressure, the amount of urine may be increased and the anuria relieved, through the action of spartein on general blood-pressure, and indirectly on the local kidney-pressure, raising the latter and rendering the kidney functionally more active.

Maryland Medical Journal, Baltimore

September

- 112 Prevention of Racial Deterioration and Degeneracy. L. F. Barker, Baltimore.
- 113 Pathology of Pellagra. C. W. G. Rohrer, Baltimore.

Mississippi Medical Monthly, Vicksburg

September

- 114 What the Practitioner and the County Society May Do to Aid the Council on Pharmacy and Chemistry. R. M. Boyd, Houston.
- 115 Bismuth Paste in Empyema. J. H. Johnson, Brookhaven.
- 116 Laceration of the Cervix and Perineum: A Factor in Nervous Troubles of Women. T. H. Henry, Columbus.

Southern California Practitioner, Los Angeles

August

- 117 Arteriosclerosis: Observations on Blood Pressure. B. Reed, Alhambra, Cal.
- 118 Similia Similibus Curantur. W. W. Watkins, Phoenix, Ariz.
- 119 The Los Angeles Health Department and the Milk Supply. C. F. Edson, Los Angeles.
- 120 Surgical Treatment of Ulcerative Perforation of the Hollow Viscera. A. S. Lobingier, Los Angeles.
- 121 Salivary Calculi. J. M. King, Los Angeles.

West Virginia Medical Journal, Wheeling

September

- 122 Mental Influence Over the Bodily Functions. S. L. Jepson, Wheeling.
- 123 Poliomyelitis, Apropos of the Spread Southward of This Disease. T. A. Williams, Washington, D. C.
- 124 Treatment of Diphtheria. W. J. Judy, Kerens.
- 125 Spina Bifida—Report of a Case. J. E. Cannaday, Charleston.
- 126 *Nutmeg Poisoning. G. D. Lind, Johnstown.

126. Nutmeg Poisoning.—In this case the boy seemed to be suffering from the effects of some narcotic. His pupils were dilated, he staggered in attempting to walk, and on being awakened from sleep would immediately go to sleep again. He complained of a fullness in his stomach, and said that he was drunk. Pulse and respiration were slow, he had no nausea or pain. He said that he had eaten some candy given him by another boy about 4 p. m. He did not recover from the effects until the next morning, when it was discovered that the so-called candy was five or six nutmegs.

St. Paul Medical Journal

September

- 127 Hysteria in the Light of the Analytic Method. I. H. Coriat, Boston.
- 128 Migraine. L. A. Nelson, St. Paul.
- 129 The Public Drinking Cup. J. E. Dearholt, Milwaukee.
- 130 Dr. Alexander J. Stone: An Appreciation. J. L. Rothrock, St. Paul.

Louisville Monthly Journal of Medicine and Surgery

September

- 131 Surgery of the Ureters. L. S. McMurtry, Louisville.
- 132 The Louisville Water Supply and Typhoid. J. R. Morrison, Louisville.
- 133 Value of Spontaneous and Induced Labyrinthine Irritation in Diagnosis. J. M. Ray, Louisville.

American Medicine, New York

August

- 134 Gonorrheal Conjunctivitis in an Adult Aborted by Application of Two Per Cent. Nitrate of Silver. J. H. Claiborne, New York.
- 135 Social and Clinical Aspects of Trachoma. A. Brav, Philadelphia.
- 136 Hysterical Amaurosis. H. K. Fleckenstein, Baltimore.
- 137 Reddisplacement in Adjusted Colles' Deformity. C. I. West, Washington, D. C.
- 138 Common Sense at the Bedside. C. H. Maxwell, Morgantown, W. Va.
- 139 Physostigmin. W. C. Abbott, Chicago.
- 140 Hysterical Mutism. M. Neustaedter, New York.
- 141 Serotherapy of Gonorrheal Arthritis. R. H. Herbst, Chicago.
- 142 Optic Nerve Affections Due to Ethmoiditis. O. Schimer, New York.

Western Medical Review, Omaha

September

- 143 Two Cases of Rupture of the Bladder. B. A. McDermott, Omaha.
- 144 Practical Observations in Syphilis. A. Schalek, Omaha.
- 145 Pseudomastoiditis. J. M. Patton, Omaha.
- 146 When Not to Operate. J. M. Mathew, Lincoln.
- 147 *Sources of Remedies. E. W. Rowe, Lincoln.

147. Remedies.—The practitioner, says Rowe, has not the time, inclination or ability to investigate his drugs thoroughly. This necessitates a reliable source to which he may have access at all times. All drug remedies may be found in one of the following sources: (1) The Pharmacopeia; (2) the National Formulary; (3) the current literature, and (4) New and Nonofficial Remedies. Speaking of the latter Rowe says that proprietary articles not included in New and Non-official remedies are not worthy of a physician's attention. The Council on Pharmacy and Chemistry has shown up fraud and misrepresentation connected with the exploitation of many proprietary articles. It has done more to raise the commercial ethics of pharmaceutical manufacturers than any other agency, not excepting the national Food and Drugs Act. It has given the profession a reliable source of information regarding the value of numerous nonofficial remedies. It has made plainer a scientific drug therapy as contrasted with the haphazard and vicious results of nostrum prescribing.

Buffalo Medical Journal

September

- 148 Obstetrics and Gynecology. J. C. Webster, Chicago.
- 149 Important Factors in Diagnosis and Treatment of Surgical Tuberculosis. M. B. Tinker, Ithaca, N. Y.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

August 27

- 1 *Treatment of Gastric Ulcer. C. Bolton.
- 2 *Necessity for Operation in Gastro-Duodenal Ulceration. K. W. Monsarrat.
- 3 Hepatic Abscess Following Acute Appendicitis. L. A. Bidwell.
- 4 *Cause of Death After Operation for Appendicitis. H. H. Brown.
- 5 *Direct Esophagoscopy. T. J. Faulder.

1. **Treatment of Gastric Ulcer.**—This is a detailed exposition of the treatment of gastric ulcer as employed by internists.

2. **Necessity for Operation in Gastroduodenal Ulceration.**—Monsarrat urges operation in all these cases, even in the absence of any complications.

4. **Cause of Death after Operation for Appendicitis.**—When suffering from an ordinary attack of appendicitis there are, according to Brown, three lines of defense by which the organism protects itself. The first line is the lymph agglutination of mesentery, intestines, etc., around the appendix, which limits the abscess, and prevents infection of the general peritoneal cavity with pus. It is these adhesions which surgeons are so careful to preserve, and fearful of breaking down. The second line of defense is a more important one. This is a layer of lymph covering the surface of the intestine and omentum and forming the wall of the abscess cavity. Brown believes that this lymph acts as a filter, allowing soluble toxins to pass through into the lymphatics and blood stream of the surrounding viscera, but presenting a barrier to the passage of bacilli, like the porcelain of a Berkefeld filter. It is this barrier which it is all important to preserve until

the third line of defense has been established. The third line is in the blood itself; the passage of toxins into the circulation results in a rise of temperature, quickening of pulse, etc., and the formation of protective antibodies in the serum. More and more toxin passes through as time goes on, and the abscess becomes larger, until, in course of time, generally during the second week of an attack, the temperature may fall to normal, or nearly so, and the serum become saturated with antibodies.

By this time the patient has become protected. If the abscess is opened, foul-smelling pus flows freely over the abdominal wound, which may afterward be sutured for the greater part of its extent and heal by first intention, without even any sign of redness around the stitches. There is no more danger to the patient than in opening an abscess anywhere else. The moral, Brown says, is obviously this: 1. Do not be in a hurry to operate, unless an operation can be performed within the first 24 hours, when the mischief is presumably confined to the appendix itself, or when general peritoneal infection is impending or has already taken place. 2. When definite abscess has formed, wait until after the first week; when about ten days have elapsed it is probable that protection will be complete. During this period the patient should, of course, be kept under close observation, so that an operation can take place at any time, if necessary. 3. Be contented to drain the cavity. Gentle flushing may be employed at the time of the operation if preferred, but do not do more than is necessary for this purpose. 4. Above all things, if operating early, simply evacuate the pus without touching the abscess wall, and leave the appendix to be dealt with at a later date when all infection has sub-sided.

5. Direct Esophagoscopy.—These 8 examinations recorded by Faulder were made on patients varying from 30 to 70 years of age, 4 males, 3 females. Two of them took place under general anesthesia; in the others no anesthetic was used, or only a little cocaine brushed over the pharynx. He is convinced that these examinations show that esophagoscopy is safe and practical. As regards anesthesia, a sensible patient can be of great assistance to the surgeon if he be conscious. He can swallow when directed to do so, he can alter the position of head or neck as required, and his sensations are to some extent a safeguard against damage. For these reasons a beginner should not use general anesthesia, although it spares the patient much discomfort and permits of a longer and more careful examination than would otherwise be the case.

Lancet, London

August 27

6 Students' Number, Session 1910-1911.

Indian Medical Gazette, Calcutta

August

- 7 Dengue or Phlebotomus Fever. C. N. C. Wimberley.
- 8 Rationale of Quinin Prophylaxis. H. W. Acton.
- 9 Ascariasis. Is there a Round-Worm Fever? P. Hehir.
- 10 Leukemia and Pseudoleukemia. R. H. H. Goheen.
- 11 Mixed Tumor of the Parotid. J. Davidson.
- 12 Case of Pneumonia, Terminating in Gangrene of the Lung and Presenting Several Unusual Features. T. C. Rutherford.
- 13 Subconjunctival Injections of Craniid of Mercury in Trachomatous Conditions. H. Smith.
- 14 Kala-Azar in Patna. D. N. Prashad.

Australasian Medical Gazette, Sydney

July 20

- 15 Influence of the Medical Profession on the National Life in Australia. W. A. Verco.
- 16 Snake Venom. D. A. Welsh and H. G. Chapman.
- 17 Symptom-Complex in Ruptured Abdominal Hydatid. J. E. Barling and D. A. Welsh.
- 18 Two Interesting Cases of Fibromyoma of the Uterus. R. Worrell.
- 19 Etiology of Ectopic Gestation, with Remarks on Diagnosis Based on an Experience of 114 Cases. G. Craigs.
- 20 Tubal Pregnancy Based on 108 Consecutive Cases. H. C. T. Young.
- 21 Prevalence of Syphilis in Brisbane, and Consideration of Certain Other Matters in Connection with Public Mortality. E. S. Jackson.
- 22 Treatment of Malignant Diphtheria. W. F. Litchfield.

16. Snake Venom.—It is with the hemolysins of Australian venoms that the authors have mostly worked, and they give a descriptive account of their action, and note their bearing on the general question of immunity. These venoms include

those of the black snake (*Pseudechis porphyriacus*), the fierce snake (*Pseudechis ferox*), the brown snake (*Dicmenia texilis*), the tiger snake (*Notechis scutatus* s. *Hoplocephalus curtus*), the death adder (*Acanthophis antarcticus*), the broad-headed snake (*Hoplocephalus bungaroides* s. *variegatus*), and, among monotremes, the poison gland of *Lichidna aculeata*. Among the red blood cells tested with one or more of these venoms were those of man, the dog, horse, pig, sheep, ox, and snake. The experiments were designed to test the interaction of varying quantities of venom with (1) red blood cells washed free of serum, (2) red cells and fresh serum, and (3) red cells and serum heated to (a) from 56 to 60 C., (b) 85 c., and (c) 100 C.

The following general results were obtained:

1. As in the case of Indian and American species, the venoms of different Australian snakes vary greatly in their hemolytic effects; and, by testing with the washed corpuscles of some relatively susceptible species, it is possible to grade the venoms according to their toxicity for the hemocytes.

2. The washed corpuscles of different species of mammals differ greatly in their susceptibility and resistance to individual venoms, and may be grouped accordingly. Corpuscles which are most sensitive to one venom are found to be most sensitive to others also; and corpuscles which are most resistant to one venom are most resistant to others.

3. The presence of the fresh homologous serum, in minute or moderate quantity, has not, in their experience, activated any venom for corpuscles that are insensitive when washed. With susceptible corpuscles in the fresh serum has in some instances reinforced the action of venom—that is, serum complement or serum lecithin has been superadded to the endolecithin. With other susceptible corpuscles, however, the fresh serum has inhibited the hemolytic action of the venom—that is, inhibitory substances in the serum have predominated.

4. Heating the serum does not produce much change for or against activation at the lower temperature, 56 to 60 C., indicating that serum complements are not much concerned in the interaction. But, at higher temperatures, 85 C. and notably at 100 C., a marked effect is noted. When the venom can dissolve the washed corpuscles, the addition of serum heated to 100 C. accelerates and extends the hemolysis; and, in some instances where the washed corpuscles are not affected by venom, the presence of serum similarly heated so activates the venom as to induce hemolysis probably by liberation of lecithin.

5. In some combinations of venom corpuscles and heated homologous serum, no hemolysis occurs, and yet, with the same venom, the same corpuscles and a heated heterologous serum marked hemolysis may take place, indicating that heating different sera renders available very different amounts of a venom activator, probably lecithin.

17. Symptom-Complex in Ruptured Abdominal Hydatid.—

The facts presented by Barling and Welsh have reference to a series of 6 cases of hydatid disease complicated by rupture or leakage of the cyst into the peritoneal cavity. In 5 of the cases the cyst was situated in the liver, in the remaining case in the spleen. In 50 per cent. of the cases examined the blood change was a marked one, in another 25 per cent. the change was moderate, while in the remaining 25 per cent. it was entirely absent or so slight that it was of no use from a diagnostic point of view. The authors found eosinophilia to be a marked feature of every case in which the cyst had ruptured or leaked into the abdominal cavity. The actual number of the eosinophils present in the blood in the 6 cases varied considerably. In 3 the reaction was excessive, the actual figures being in the first case 8,580 eosinophils per c.mm., or a number equal to 54 per cent. of the leukocyte content of the blood; in the second case there were 8,200 eosinophils per c.mm., or a number equal to 47 per cent. of the leukocytes; in the third case there were 5,440 eosinophils per c.mm., or a number equal to 34 per cent. of the total leukocytes. In two of the remaining cases the blood change was a marked one, there being in one of them 1,628 eosinophils per c.mm., a number equal to 22 per cent. of the total leukocytes, and in the other 1,320 eosinophils per c.mm., a number equal to 12 per cent. of the leukocytes present. In the one remaining case the reaction, though slight, was definite, there being 354 eosinophils per c.mm., a number equal to 5.6 per cent. of the total leukocytes.

The second outstanding feature of these cases of ruptured abdominal hydatid is the peritonitis set up by the presence of the hydatid material in the peritoneal sac. The most noticeable feature of this peritonitis is the large amount of fluid which is poured forth. The third feature is the urticaria which attends the rupture of the hydatid cyst. In the cases which have come under the author's notice it was invariably present.

In 2 of the 6 patients no history of a rash could be obtained, although careful inquiries were made on this point. In

high responsible positions and brain workers. They presented various degrees of obesity, flatulence or aerophagy but all had in common a tendency to dizziness, oppression in the heart region, palpitations, scotoma, enlargement of the veins, especially in the neck, and a gray or yellowish complexion sometimes suggesting cachexia. A little shortness of breath after muscular exertion was the only complaint in regard to dyspnea. In this condition, as the patient breathes the thorax is seen to be less movable than normal. The maximal blood pressure is high, averaging from 125 mm. mercury for the minimum to 170 or 180 mm. maximum (Gaertner's tonometer), but the pressure returns to normal when normal conditions in the respiration are restored. Sometimes in the cases reported the blood-pressure differed in the right and left sides. Treatment should aim to promote diaphragmatic respiration by training the costal muscles to perform their task, exercising them to increase their tonicity, while regulating the diet to strengthen the muscles. In conclusion the author warns that the atony of the stomach and intestines in the corpulent with considerable meteorism may simulate a higher degree of obesity than actually exists. In treating obesity the aim should be, he says, not so much to reduce the weight as to render the patient's muscles more functionally capable. The greater demands on the muscular capacity, however, require a corresponding amount of albumin in the food; the diets which neglect this fail to supply conditions favorable for correction of the atony of the stomach.

65. Importance of Direct Visual Inspection in Rectal Disease.—Pewsnar has applied recto-sigmoidoscopy in 73 cases in the last 5 years and has found it valuable in detection of inflammation and cancer in the incipient phases. In some cases the only complaint was severe constipation, in others merely tenesmus. Even ulceration in the lower segment of the bowel may occur without symptoms to attract attention to the lesion. He was able by this early direct visual inspection to discover cancer in 3 cases, 13, 16 and over 18 cm. above the anus which had escaped digital examination. The only symptoms had been occasional false impulses for defecation. The technic of direct visual inspection is simple and easy, far more so than cystoscopy, he says, and he urges internists to adopt it as a routine measure.

67. Tuberculosis of the Esophagus.—Burekhardt reviews the cases on record of this perhaps rarest of all localizations of tuberculosis, and then describes a personal case in a man of 60; the lesion is evidently secondary to advanced processes in the lungs. In a second personal case there was no chronic lung affection and no tuberculous sputum to be swallowed but there were tuberculous meningitis and tuberculous lesions in the fibula, etc.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena
August 13, XIII, No. 14, pp. 529-560

68 *Thrombosis and Embolism of the Mesenteric Vessels. D. G. Zesas. Commenced in No. 9.

68. Thrombosis and Embolism of the Mesenteric Vessels.—Zesas found 363 articles in the literature bearing on this subject, all of which he reviews. The results to date of operative treatment are not very encouraging—only 5 cases of recovery out of 13 in which the infarcted part of the bowel involved was resected. Only 7 cases are known of simultaneous obliteration of both vein and artery. Massage is particularly dangerous if mesenteric thrombosis or embolism is suspected. Exploratory laparotomy is indispensable. In 13 cases conditions were found inoperable but Tschudy cured a patient by packing with gauze to shut off the infarcted region, keeping the abdominal wound open. Symptoms of ileus had come on 3 days after an interval appendicectomy; the entire cecum was transformed into a bluish solid tumor but there was no gangrene, and the permeability of the bowel was restored in a few hours. Mouchet has reported a similar case but the patient succumbed. The details of 6 other cases are related in which an artificial anus was made but none of the patients survived the embolism. Kölbing has reported a case in which gastroenterostomy was done after resection of the infarcted loop, with recovery of the patient, a woman of 31 who had had diarrhea for several days with increasing

abdominal pain and vomiting and tympanitic resonance over a loop of intestine on the left side. In 13 other cases the loop of intestine involved was resected, with recovery of 5 of the patients. Thrombosis of a mesenteric vessel has been observed in a month-old babe and in 2 children of 5 and 8, but the majority of patients were between 30 and 60.

Deutsche medizinische Wochenschrift, Berlin

August 18, XXXVI, No. 33, pp. 1513-1552

- 69 *Ehrlich's "606" in Syphilis. (Arsenobenzol und Syphilis.) K. Herxheimer.
- 70 The Contents of the Duodenum. (Erfahrungen über den Duodenalinhalt.) M. Eitnhorn.
- 71 Cause of Retention of Bromin and Displacement of Chlorin in the Blood by Bromin. (Ursache der Bromretention und die Verdrängung von Chlor durch Brom im Blute.) E. Frey.
- 72 Syringomyelia in Mother and Daughter. H. Goldblatt.
- 73 Case of Pure Sensory Alcoholic Polyneuritis. A. Pelz.
- 74 *Painless Operations on the Face and Mouth. (Schmerzlose Operationen im Gebiete des Gesichtsschädels und Mundes unter Leitungsanästhesie.) H. K. Offerhaus.
- 75 Primary Tuberculosis of the Fallopian Tubes. A. Müller.
- 76 *Extension in Treatment of Nervous Disease. A. Heermann.
- 77 Biologic Method of Developing Photographs. (Die Pepsin-festigkeit der belichteten Chromgelatine als Grundlage eines biologischen photographischen Entwicklungsverfahrens.) L. Jacobsohn.

69. Ehrlich's "606" in Syphilis.—Herxheimer states that in 11 weeks' experience with "606" and 83 cases of syphilis no by-effects of consequence were noticed beyond the local painfulness and febrile reaction, all of which are avoided by the later improved technic. There was transient retention of urine in one neurasthenic patient, but urination became normal again at once after a sitz bath. The reflexes behaved normally in all cases. According to Ehrlich's directions, the fundus of the eye, the heart, lungs, liver and kidneys were investigated in every case before the drug was given and any pathologic findings caused the patient to be excluded from this method of treatment. The findings in regard to spirochetes, the blood count and the Wassermann reaction were also recorded. No spirochetes could be discovered in 82 cases 48 hours after the injection, nor has recurrence been observed during the 11 weeks to date. In the other case the spirochetes did not seem to be affected by the drug, and A. Glück has encountered 2 similar cases; it seems as if certain rare strains of spirochetes must be insusceptible to the action of the drug, just as some have been known to be mercury-fast. In a case of universal psoriasis of 18 years' standing there was extensive desquamation after the injection but after 48 hours conditions had returned apparently to the same as before the injection. Otherwise, Herxheimer's experience has been favorable in regard to the efficacy of the drug and, like others, he mentions especially its prompt and effectual action in malignant syphilis. [Jellinek raises a warning voice not to be too hasty in judgment of the new remedy for syphilis, saying that the lay press throughout Germany is proclaiming it far and near as a prompt and radical cure for syphilis and is thus throwing down the barriers against venereal infection by removing the fear of syphilis. Jellinek comments further on the actual criminal optimism which is being fostered among the masses by the marvelous stories in regard to "606" that are issuing from the hospitals. He says this in the *Klin.-therap. Wochenschrift*, 1910, XVII, 80, in commending a pamphlet on sexual hygiene by Prof. S. Ribbing of Lund, Sweden, which he regards as a model work for young men on this subject.]

74. Painless Operations on the Bones of the Face and the Mouth Under Local Anesthesia.—Offerhaus' method of obtaining access to the trigeminal nerve for relief of neuralgia by injection of alcohol was described in *THE JOURNAL*, August 13, 1910, page 630. He here states that the method is proving valuable for local anesthesia for operations on the face, jaws and mouth in which the cooperation of the patient is of inestimable advantage. By the technic described it is possible, he says, to locate the foramen desired without the least trouble and without previous trials on the cadaver, except under very unusual conditions. He has applied this technic for injection of a local anesthetic in 11 cases and the results were good in 9, the failure in the others being due to the displacement of the nerve by the cancerous growth for which the operation was undertaken. He usually gives a sedative to the patients before injecting the anesthetic, and

he does not attempt to apply this technic for local anesthesia in case the patient is very nervous and excitable. In the cases adapted for it, however, the advantages are great. The illustrations explain the technic described. He has applied the technic for treatment of severe trigeminal neuralgia in 12 more cases since those reported in his previous communi-

from a dry rubber sponge inside a girdle is useful in the cases in which pressure relieves the pain.

Medizinische Klinik, Berlin

August 21, VI, No. 31, pp. 1323-1358

- 78 Treatment of Otitis Media. (Behandlung der akuten und subakuten Erkrankungen des Mittelohrs.) P. Stenger.
- 79 Importance of Constitutional Factors in Etiology of Certain Nervous Disturbances. (Bedeutung des Konstitutionalismus für die Ätiologie einiger Nervenkrankheiten: Rezidivierende Okulomotoriuslähmung und toxische Polyneuritis.) A. Margulies.
- 80 Iodin-Benzin for Skin Sterilization and for Treatment of Wounds. G. Meyer.
- 81 Experiences with Ehrlich's "606." Braendle and Clingstein.
- 82 Congenital Atresia of the Duodenum. W. Weber. Commenced in No. 33.
- 83 Diagnosis of Acute Pancreatitis in General Practice. Stuparich.
- 84 Morphologic Changes in the Blood with Gout. (Ueber morphologische Blutveränderungen bei Struma.) C. Müller.

79. Constitutional Factor in Nervous Disturbances.—Margulies writes from the clinic in charge of von Jaksch at Prague to relate a number of cases of recurring oculomotor paralysis or toxic polyneuritis in which the evidence seems to sustain the assumption that certain nerves or nervous systems are congenitally predisposed to yield more readily to injurious influences than those in other persons. This assumption is confirmed by the occurrence of certain affections in families. Some parts of the nervous system, especially the peripheral, are peculiarly non-resistant in these persons and yield readily to injurious external influences, while other regions and other individuals escape. In conclusion, he re-

ports a case of toxic polyneuritis in a father and 2 sons, the symptoms suggesting cholera and being followed by pains and paralysis in the legs, all coming on simultaneously in the 3 men after eating heartily of a dish of rice. The father succumbed by the end of the second week, with all the extremities paralyzed. The young men have recovered some ability to walk during the year since, but suffer from pains in the legs and early exhaustion. The syndrome suggested beriberi, especially as it came on immediately after eating rice. There had been no disturbances elsewhere in the town from eating the rice from the same bag, and nothing abnormal could be discovered about the rice when examined by the author. Everything speaks for the assumption, he is convinced, of a constitutional susceptibility on the part of the nervous system involved; the clinician should strive to distinguish this

constitutional factor in the syndrome observed from the symptoms peculiar to the affection in question.

81. Ehrlich's "606" in Syphilis.—Braendle and Clingstein report their experiences with 27 cases of syphilis. The results were sometimes brilliant but in others not particularly satisfactory, fully as good results being attainable, they say, under the ordinary measures. The promptly favorable action of the drug in malignant syphilis, however, was particularly striking. By-effects were observed in the vascular system; in several patients the blood-pressure was increased immediately after the injection while from the second to the third day the pulse was inclined to be accelerated and small but there were no threatening symptoms. Three patients, however, presented signs of collapse of brief duration. (Spatz has reported similar experiences in the *Wiener med. Wochenschrift*, 1910, No. 27.) The pulse kept fast longer than corresponded to the fever. Other symptoms eventually ascribable to arsenic intoxication were headache, dizziness, nausea and vomiting which were observed in several cases. Only slight by-effects on the part of the nervous system were noted; in about a fourth of the cases the tendon reflexes were exaggerated for a few days after the injections. Most of the patients gained greatly in weight after the injection, a gain of from 6 to 15 pounds in a few weeks being the rule. The Wassermann reaction has persisted positive to date in all



Fig. 1.—Application of callipers to measure the distances and locate imaginary connecting line.

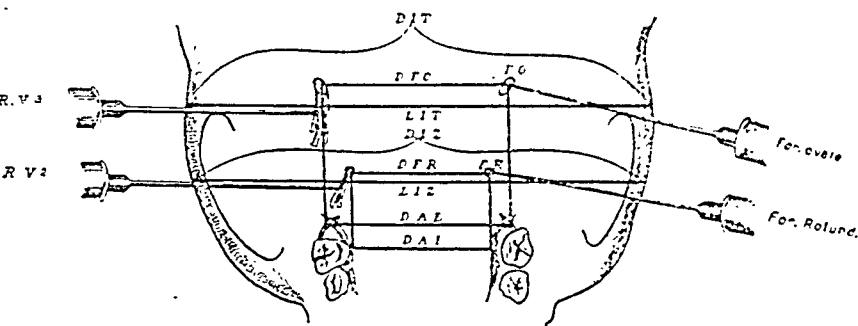


Fig. 2.—Third Branch of the Trigeminal nerve: D.F.O. = D.A.E. Needle to be inserted to a depth of $\frac{1}{2}$ (D.I.T.—D.A.E.) D.I.T. = Distantia Intertubercularis. L.I.T. = Linea Intertubercularis. D.F.O. = Distantia Foram. oval. D.A.E. = Distantia Inter-alveolaris externa. Second Branch of the Trigeminal Nerve: D.F.R. = D.A.I. Needle to be inserted to a depth of $\frac{1}{2}$ (D.I.Z.—D.A.I.) D.I.Z. = Distantia Interzygomatica. L.I.Z. = Linea Interzygomatica. D.F.R. = Distantia Foram. rotund. D.A.I. = Distantia Inter-alveolaris interna.

cation; in 10 of the cases a complete cure was realized and material improvement in another case while in still another case the trouble was of central origin and naturally no benefit was derived. Except for a few weeks of stiffness and pain in chewing in one case, no untoward by-effects were observed.

76. Stretching the Nerve in Treatment of Sciatica and Other Nervous Disease.—Heermann pulls on the leg of the reclining patient, exerting about as much force as for pulling off a boot. If this relieves the pain of the sciatica, he applies extension systematically, raising the extended leg once or twice a day to the point borne without special pain and then applying extension to the foot with the leg resting on an inclined plane. This is repeated cautiously once or twice a day for from 5 to 30 seconds at a time. This stretching is supplemented by stretching the leg backward for a few seconds as the patient lies on the side. The ordinary measures are also applied but the nerve stretching often proves successful alone. For adjuvant massage he places his hands flat and gently on the abdomen and sacrum of the patient as he lies on his side. If the patient shrinks, he stops at once, but if the pressure is gratefully received he massages with the flat hand, making circular motions and gradually approaching nearer and nearer to the points of greatest pain. This massage in combination with the extension relieved the pain better than sedatives in some of his cases. Pressure

positive and 23 with negative findings, the latter group including 5 cancer cases.

Riforma Medica, Naples

August 15, XXV, No. 33, pp. 897-924

- 115 Graphic Record of the Knee-Jerk. (Contributo allo studio grafico del clono della rotula.) G. Breccia.
116 Form of Neuritis with Hypertrophy of the Nerves Occurring in Several Members of a Family. (Nuova forma di nevrite ipertrofica familiare. Il tipo Pierre Marie.) P. Boveri.
117 Primary Cancer in Herniated Appendix. F. Gangitano.

Hygiea, Stockholm

July, LXXII, No. 7, pp. 705-783

- 118 *Successful Puncture of Intestine or Enterotomy in Six Cases of Ileus. (Sex fall af ileus, med framgång behandlade med tarmpunktion resp. enterotomi, jämte några ord om den därvid användda operationstekniken.) E. A. Eriksson.
119 *Gumma at the Cardia. (Till den visceral syfilis' kasuistik. Gumma cardia.) C. Cronquist.
120 Case of Rupture of Brain Tissue. (Ett fall af hjärnbräck.) H. Malmqvist.
121 Successful Cesarean Section in Patient with Contracted Pelvis and Heart Defect. (Kejsarsnitt med lycklig utgång vid trängt bäcken och hjärtfel.) A. Troell.
122 Rupture of Bladder During Alcohol Intoxication. (Ett fall af blåsruptur i samband med alkoholförbrukning.) T. Frieberg.
123 Case of Acardius Amorphus. C. F. Hefjell.

118. Puncture of Intestine or Enterotomy for Ileus.—The ileus was due to volvulus of the cecum and colon or sigmoid flexure, paralysis of the bowel after herniotomy, coprostasis and adhesions or diverticulitis in Eriksson's 6 cases. Treatment in each was by a laparotomy and puncture of the bowel; in only a few of the cases was it necessary to make an actual enterotomy, the lesser operation generally sufficing. Since Eriksson has restricted his ileus operations to mere puncture the outcome has been generally good; he has lost only one patient, a man of 64 with ileocecal invagination and bronchitis, who succumbed to chloroform intoxication.

119. Gumma in the Cardia.—Cronquist's patient was a man of 42 who had had some difficulty in swallowing for three years, gradually growing more and more severe. The presumptive diagnosis was cancer of the cardia, but a casual remark led to the discovery of a history of certain symptoms years before suggesting possible syphilis. Under tentative mercurial treatment the stenosis at the cardia rapidly subsided.

Norsk Magazin for Lægevidenskaben, Christiania

August, LXXI, No. 8, pp. 785-864

- 124 *How Long Should the Lying-In Woman Stay in Bed? (Hvorlænge bør en barselkvinde ligge tilsengs?) K. Brandt and J. Horn.
125 *Infected Cystic Kidney. Recovery After Nephrectomy. (Inficeret cystenyre; nefrektomi; helbredelse.) P. Bull.
126 Functional Tests of the Heart. (Den funktionelle diagnostik, dens maal og midler, specielt med hensyn till hjertets funktion.) S. Madsen.

124. How Long Should Women Stay in Bed After Delivery?—Brandt and Horn state that their investigation of the subject has shown that involution and healing are not well under way before the tenth or twelfth day. If the woman gets up before this date infection is liable to occur and may easily be overlooked while a predisposition to genital prolapse may develop.

125. Infected Cystic Kidney.—Bull remarks that the diagnosis is generally very difficult, as the physician seldom thinks of the possibility of this rare condition. The cystic kidney is peculiarly liable to become infected. Sieber found infection mentioned in 10 per cent. of 200 cases on record, and Borelius in 1 of his 4 cases. Bull calls attention to the family tendency in his cases; a man and 3 of his 11 children and a brother and sister had cystic kidneys, the diagnosis being confirmed by operation or autopsy. The symptoms came on about the age of 24, and none of the third generation has reached this age yet. Notwithstanding that the tendency to cystic kidney is bilateral as a rule, if one kidney is predominantly affected while its mate is still functionally capable, nephrectomy may be indicated. He reviews the northland literature on the subject and Sieber's monograph. In only 9 of the 200 cases was only 1 kidney involved, as determined at autopsy; both were involved in 150. In about 12 per cent. of all the cases the lesion had never induced appreciable symptoms. The urine may be normal but generally is like that with contracted kidney. The kidney region is usually tender and there may be vague or sharp pains, constant or

paroxysmal. Intermittent hematuria was observed in 20 per cent. of the cases, hypertrophy of the heart in 50 per cent. and a hemorrhagic tendency was frequently apparent, apoplexy even in the young, epistaxis, intestinal hemorrhage and hemoptysis. Nephrectomy was done in 61 cases with 20 fatalities; 8 of the patients are still living after from 3 to 7 years. Nephrotomy was done in 10 cases, on both kidneys in 4, with 2 fatalities.

Ugeskrift for Læger, Copenhagen

August 11, LXXII, No. 32, pp. 943-968

- 127 *The Leukocyte Count in Different Parts of the Circulation at the Same Time. (Om Leukocyttælling og Inhomogenitet.) V. Ellermann and A. Erlandsen.
August 18, No. 33, pp. 969-996

128 Indications for Treatment in Appendicitis. E. Müller.

127. The Leukocyte Count and Inhomogeneity.—This latter term has been coined by Kjer-Petersen to express a variability in the leukocyte count in blood taken from different points in the circulation at about the same time. He found wide variations in this respect, but Ellermann and Erlandsen were unable to discover any tendency of the kind in 110 double examinations of the blood of 64 women patients.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

A LABORATORY TEXT-BOOK OF EMBRYOLOGY. By Charles S. Minot, LL.D. (Yale and Toronto). James Stillman, Professor of Comparative Anatomy in the Harvard Medical School. Second Edition. Cloth. Price, \$3.50 net. Pp. 402, with 262 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

THE EFFECTS OF A RESTRICTED DIET AND OF VARIOUS DIETS ON THE RESISTANCE OF ANIMALS TO CERTAIN POISONS. By Reid Hunt. Paper. Pp. 93. Bull. 69, Hyg. Lab., P. H. and M.-H. S. Washington: Government Printing Office, 1910.

VACCINE THERAPY. Its Theory and Practice. By R. W. Allen, M.D., Late Clinical Pathologist to the Mount Vernon Hospital for Diseases of the Chest. Third Edition. Cloth. Price, \$2 net. Pp. 277. P. Blakiston's Son & Co., 1910.

New Patents

Recent patents of interest to physicians:

956258. Window tent. John G. Allen, Peoria, Ill.
955937. Atomizer. John R. Ballentine, Toledo, Ohio.
955938. Atomizer. John R. Ballentine, Toledo, Ohio.
956052. Pocket-atomizer. Frank C. Dormont, Detroit, Mich.
956325. Massage cup or tip. Joseph B. Fey, Columbus, Ohio.
956120. Producing manganates, permanganates, halogens and hydroxids. Florentine J. Machalske, Chicago.
956155. Invalid's chair. Rosa M. Olmsted, Columbus, Ind.
956438. Crutch tip. Edward H. Seibert, St. Louis.
956221. Magnetic tachometer. John K. Stewart, Chicago.
957035. Pasteurizer. Hans Christensen, Fort Atkinson, Wis.
956734. Manufacturing methane or mixtures of methane and hydrogen. Paul Sabatier, Toulouse, France.
957295. Recovering potash salts. Augusto Alberti, Rome, Italy.
957548. Inhaler. Walter S. Doane, Worcester, Mass.
957758. Swing for osteopathic tables. William E. Fogle, Bath, N. Y.
957761. Making sodium sulfite and ammonium chlorid. Richard Friedrich, Glosa, near Chemnitz, Germany, and F. Hirsh, Vienna, A. H.
957204. Making a medicinal compound. Anton Garlesan, Chicago.
957718. Device for the correction of flat foot, weak foot or fallen arch of the foot. Frederick C. Schumacher, New York.
957267. Prophylactic drinking vessel. James L. Sowell, Jasper, Ala.
957449. Disinfectant holder. Charles J. Walz, New Haven, Conn.
958697. Atomizer. Frank C. Dormont, Detroit.
958488. X-ray tube. Henry Green, Hartford, Conn.
958133. Sterilizer and drier. Aage Jensen, Eureka, Cal.
958259. Disinfecting device. Fernand Le Faguays, Nantes, France.
957976. Atomizer and the like. Owen D. Lucas, Bayswater, London, England.
958267. Truss. Thomas E. Martin, Buffalo, N. Y.
957982. Electric vibrator. Sampson W. Moon, Chicago.
958527. Respirator (smoke protector). Martin Panlan, Eveleth, Minn.
958536. Spraying attachment. Charles H. Rath, Philadelphia.
958179. Surgical instrument. John S. Rydell, Minneapolis.
958180. Producing tantalum. Johannes Schilling, Halesnec, near Berlin, Germany.
958569. Respirator and inhaler. Richard Venner, Barre, Vt.
958199. Corn and bunion plaster. Eugene J. Ward, New York.
407221. sign prescription case. Charles F. Kurz, Cleveland, O.

